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Gleanings in Bee Culture



A part of the apiary belonging to Wm. H. Horstmann, of Chicago, Ill., showing his Capitol hive containing three full colonies and a nucleus.

The A. I. Root Co., Medina, O., U.S.A.

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Vol. XXXV

October 15, 1907

No. 20

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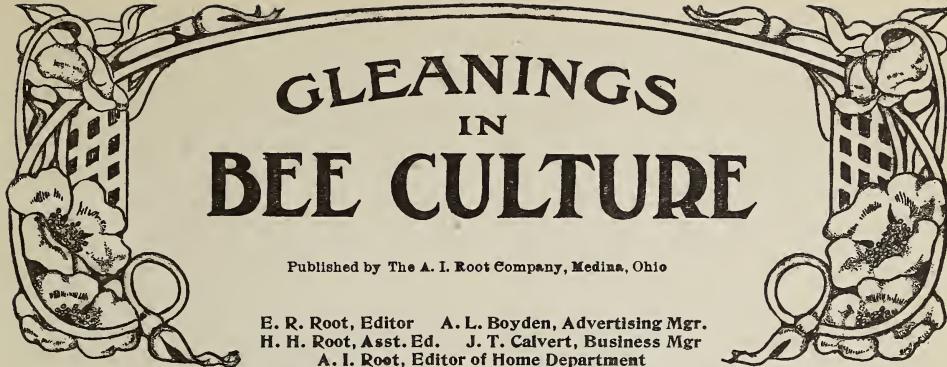
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GLEANINGS IN BEE CULTURE

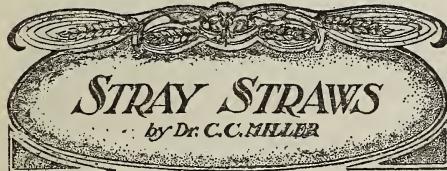
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Vol. XXXV.

OCTOBER 15, 1907.

No. 20



STRAY STRAWS

by Dr. C. C. Miller

F. GREINER, p. 1261, supposes top and bottom of a $1\frac{1}{2}$ section are $1\frac{1}{8}$ wide. Are they not $1\frac{1}{2}$? But perhaps even that is narrower than necessary.

J. M. ROTH says that, when a queen carries her wings tightly closed, it indicates strength. Wings spread out indicate weakness.—*Leipz. Bzg.*, 130.

THE *Leipz. Bzg.*, 143, recommends feeding above to supply stores, and below for stimulating. [We fail to see that it would make any difference from which point the food was given.—ED.]

GOLDEN BEES were severely condemned at the great German bee convention as poor workers, and with tongues no longer than other bees. But does any one in this country claim long tongues for the goldens?

R. A. BURNETT talks sense, p. 1272. Whatever harm has been done by fear of adulteration, vastly more harm has been done in some places by bee-keepers themselves throwing on the market such miserable stuff under the name of honey.

LYCOPODIUM sprinkled on old combs, as a substitute for pollen in spring, is highly recommended in *Europ. Bzch.*, page 126. Dr. Pilgrim says it is eagerly sought by the bees when other substitutes are neglected, and its lightness makes it comparatively cheap.

THE SIMPLEST and best plan of uniting, says Aug. Kamprath, *Bienen Vater*, 232, is to shake the bees to be united at the entrance, and let them run in, first making sure that they are well filled with honey. [This certainly helps to make the moved bees stay in their new location.—ED.]

SWITZERLAND is less than half as big as Ohio, and the Swiss Bee-keepers' Union numbers 6838 members. If we did things on the same scale here, in proportion to population, Ohio would have an association of more than 8000, and the National would number 164,000.

THE MASTERPIECE of bee culture, according to Rev. Luger, *Deutsche Bzch.*, 131, is not wintering nor yet springing, but queen culture. Every bee-keeper should be able to rear best queens for his own use. [Is it not rather all three? One is about as important as the other.—ED.]

GERMAN JOURNALS are jubilant, and well they may be, over the organization of one grand association of German-speaking bee-keepers, "Der Deutsche Imkerbund," numbering 100 000 or more (makes our National look like 30 cents). Each member pays $\frac{1}{2}$ cent into the treasury. [Such organizations are possible in Europe on account of the compactness of the population and the short distances of travel.—ED.]

"I NEVER learned the knack of using the little springs to hold the frames and sections snugly together," says F. Greiner, page 1262. I wonder if it wouldn't pay you to learn, Bro. Greiner. I value them more highly all the time. They adjust themselves to the space, and, whether tight or loose, they hold all together, whereas the wedge sometimes takes hard work to force in, and sometimes shrinkage allows it to drop out. Another important item: The straight stick wedged in diagonally makes a pocket in which the bees congregate and refuse to be dislodged; whereas all is open with the spring. One spring does for each super.

I WONDER if there is not just a little danger that the eucalyptus may prove an English sparrow to California bee-keepers. Prof. Cook says, p. 1253, that the bees "are likely to find a banquet spread in the eucalyptus groves at any and all seasons." That's nice for the bees, but how about other honey being flavored with eucalyptus? A little of such a pronounced flavor ought to go a long way; and if it is present at all seasons will

there be any honey without a touch of its flavor? For years Australians have been trying to get their eucalyptus honey accepted in London, but the London palate will none of it. Will the American palate accept it any more readily?

ANTON RAUSCHENFELS, who has been exclusively occupied in rearing queens for market since the eighties, says *B. Vater*, 247, that with his bees, and in his country, Italy, in May and June, if all is favorable the first eggs are found the seventh or eighth day after the birth of the queen; but often this is not the case; in July and August, even under the most favorable circumstances, no eggs before the tenth day; and if there is a dearth of pasturage one may be satisfied to find eggs on the twelfth day. Unless a queen is fertilized before 18 days old she is not likely to be fertilized at all. Virgins slow about mating, making frequent unsuccessful flights, are likely to be bailed by the bees. Fertilization occurs most speedily in baby nuclei.

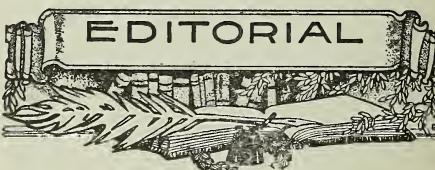
TOO LATE, perhaps, to do good by any protest, but I may at least be allowed to register a little lament that some deem it a duty to use the word "section" to signify one of the stories of a divisible brood-chamber. More than once, lately, I have been just a little troubled to know which kind of "section" was meant when the word was used. Why not let "section" continue to mean the little box it has meant so many years, and call a story a story? [The word "story" is hardly a good one, because it generally refers to a full-depth hive-body. "Brood-chamber" is better because it has come to be associated with half-depth bodies of a divisible hive. The term "section," referring to the same thing, is a little bad. Perhaps we editors should edit out these confusing words or those used out of their regular connection. We'll try.—Ed.]

G. M. DOOLITTLE has been faithful in season and out of season in trying to ding into bee-keepers' heads, as he does on page 1254, the importance of knowing the resources thoroughly and then controlling and concentrating the bees. I wonder if it has ever occurred to him that "locality," that ever ubiquitous meddler, may have something to say in the case. However important his idea may be for him and others like situated, for my bees and my locality I don't believe there is a thing in it. The desideratum here is to get all colonies as strong as possible just as early as possible, and let the bees do the rest. I never knew the time when a colony was strong any too early, and I never knew the time when I thought any thing would be gained by doing any thing to weaken it afterward. So if we don't all follow your advice, Bro. Doolittle, just lay it to locality.

On the first page of *Straws*, in the previous issue, Dr. Miller says, in reference to my query as to what to do with bees where there is no sale for them, "I am afraid very few

have had such experience; and although I do not come in the prescribed class I would suggest doubling up in fall or spring. That will reduce the number of colonies, and perhaps secure more surplus than 'taking up' in the fall." Well, doctor, I think you have hit it exactly. If one has more bees than he knows what to do with he should by all means double them up in the spring, of course taking the weak ones first until he has the desired number of colonies, taking care to save the most desirable queens. Our friend Frank Boomhower, of Gallupville, N. Y., says he took 800 lbs. of honey from one colony in one season. Said colony was eight stories high, and was made, if I am not mistaken, by taking in the brood and even whole colonies without uniting.

A. I. R.



ACCORDING to the *Louisiana Planter* the new crop of syrup from cane juice is selling freely at \$1.00 a gallon, or as much as honey would bring a short time ago.

THE *Pacific Rural Press* says that Arabian alfalfa has shown a remarkable superiority over the ordinary kind grown alongside of it at the University experiment station, Tulare, Cal.

W. K. M.

THE editor has been temporarily away from the scene of action. On returning from a trip to the Jamestown Exposition he was taken with a severe attack of what proved to be appendicitis. Since he had suffered from many lighter attacks before, an operation was considered necessary. He is now almost well again, however, and has returned to his work with renewed vigor. A part of the editorial work for this issue was dictated from his bed in the hospital.

We make this explanation for the reason that there are several important letters now awaiting his personal answer which could not be attended to promptly. These will receive his attention as soon as possible.

H. H. R.

THE VALUE OF HONEY.

The *Southern Farm Journal* prints the following excellent testimony in favor of honey for sick children. This is not an isolated case by any means. Similar instances are being constantly cited in European journals devoted to medicine and health.

According to Dr. Pol Denade, honey should occupy an honorable place in therapeutics. He relates that a lady asked his advice about a tiny emaciated baby.

The child, which lay in its mother's arms, was nine months old, and gave one the feeling that it had but to close its little eyes for death to assert itself. The infant was suffering from diarrhea, which had refused to yield to all remedies tried; the poor little creature was emaciated to an extreme degree, with black rings under the eyes, and the lower stomach fearfully large. The poor sufferer had no appetite whatever, but was, in its place, plagued with almost incessant vomiting and diarrhea. He ordered her to feed the infant on honey and water, nothing else absolutely, for eight days, and if the child were still living at the end of that time, to give goat's milk and water in the proportion of one to two parts respectively. "I dismissed the case from my mind, since I did not hope for any thing better than death as a release," says the doctor. "What was my astonishment when, at the end of three months, I was shown a healthy-looking well-nourished baby, with an excellent appetite and regular habits, and its stomach reduced to normal proportions, may be easily guessed. Here was my little wretched creature nothing less than metamorphosed by means of the honey."

SEASON REPORTS.

As mentioned in our last issue, these local reports should not be taken to represent general conditions throughout the whole of the States mentioned.

Very good crop, Dryden, Va.

One-fourth crop, Deer Plain, Ill.

No white crop; small fall crop, Meredosia, Ill.

No crop—necessary to feed, Pollock, La.

No Crop, Soldiers' Grove, Wis.

Very small crop; colonies O. K. for winter, Fremont, O.

Heavy fall crop, parts of Southern Ohio.

Double last year's crop, Grommet, Col.

Good fall flow, Underwood, Ind.

Good fall flow, Indianapolis, Ind.

Good fall flow, Parkersburg, W. Va.

Extra good crop, Petersburg, Tenn.

Poor season, Bell's Landing, Pa.

Fair crop, Mertztown, Pa.

Good crop, Stanton, N. J.

One-fourth crop, El Toro, Cal.

Extraordinary fall flow, Bard, Ark.

THE NEW PARCELS POST; WHAT THE GOVERNMENT WISHES TO DO.

THE Postmaster-General has, through the daily press, recently taken the public into his confidence with regard to the new parcels-post system which he will recommend to the consideration of Congress when it assembles. His idea is to have a parcels post at the rate of 12 cents per lb. over the whole country; then there will be a parcels post limited to rural routes, and another to cities, at a much lower rate—probably a cent a pound.

By way of criticism, the rate of 12 cts. per pound looks rather high, and it seems clear the service would succeed much better if the rate were lower. The present rate of 8 cts. per pound for books, etc., seems high enough, and it does not seem as if ordinary packages would cost any more to transport than books. Some of the European governments carry packages at 24 cts. for 11 pounds, and actually make money at it. Probably Postmaster-General Meyer's plan is best because the "vested interests" have succeeded in exciting quite a lot of people to oppose a parcels post, and his plan is likely to meet with the least opposition of any yet proposed.

The local feature will please most bee-keepers, particularly those who have a local trade in honey. In a few years, if we faint not, it may be possible for a bee-keeper to

sell his honey by talking over the telephone, and having the same delivered to his customers by parcels post. Most bee-keepers have customers who can not be reached by the present-day methods; whereas by means of the parcels post they could be reached quite nicely, even when the weather is bad.

Some folks are quite virulent in their opposition, and seem to think the farmer is expecting too much when he asks the government to do what every other civilized government does for its people. W. K. M.

THE HONEY MARKET.

DURING the past two weeks we have received further conflicting reports regarding the movement of the crop. Michigan, to which dealers usually look for very fine stocks of fancy clover honey, still offers but very little so far as we can learn—almost none going out of the State. Wisconsin and Minnesota are making very few offerings for markets in this vicinity and further east. As occasionally happens, there is some movement of honey westward. In average seasons the tendency of the crop is to move east; but in exceptional years we see Vermont clover honey going to Chicago, Iowa honey to Omaha and the West, and we learn of some movements in this direction this year.

In the eastern portion of the clover belt, particularly New York, there appears to be a larger amount of No. 1 white and amber grades than earlier reports indicated; but from information at hand we can not modify our report regarding Michigan, Ohio, Indiana, Illinois, Wisconsin, and Minnesota.

California honey is still ruling very high. Bee-keepers have made disposition of entire crops of white-sage extracted at six cents at their yards in some instances. In the alfalfa districts of Utah, Nevada, and Colorado, offerings of extracted are still firm, and prices well sustained.

There seems to be, however, a much larger offering of alfalfa comb honey than for several years; and when this latter reaches the eastern market in quantities it is likely to influence the price of eastern white honey to some extent. As we pointed out in our last, we believe it is unwise for eastern bee-keepers to hold crops of No. 1 and No. 2 white and amber grades beyond this time, for, in the light of our past experience, the maximum price is reached by October 1st, and by November 15th the height of the season is past. Those who have a strictly fancy and extra fancy clover comb honey can usually find a market for it almost any time at remunerative prices, and yet nothing is gained, in our opinion, by holding even this after the above date.

THE PROPER SOIL FOR WHITE AND RED CLOVERS; SWEET CLOVER; WHITE, YELLOW, AND SOUR CLOVER.

THOSE of our readers who have been nonplussed by the failure of white clover, both as a forage and honey plant, will be interested in the discussion now going on in the

Country Gentleman, Albany, N. Y. The discussion chiefly relates to red clover; but what is said will apply to most of the others as well. It is pointed out that, to get good crops of clover, the land must be rich naturally, and occasionally well manured to get satisfactory results. As long ago as 1758, Hale, an English writer, pointed out this fact, yet there are many who believe that we have only to sow clover on poor soil and it will soon get rich.

As a matter of fact, the only clover which grows and flourishes on poor soil is sweet clover, of the various varieties—white, yellow, and sour. Sour clover (*Melilotus Indica*) is highly recommended by the Arizona station as a soil-improver. Prof. McClatchie, of that station, says of it: "The so-called sour clover, *Melilotus Indica*, makes a vigorous growth between early fall and late spring. On account of this vigorous growth during a time of the year when irrigating water is most plentiful, it is the legume best adapted to the region for green manuring. It makes the best growth if sown during October." This, coming from such a source, is good testimony. Boiled down to its last analysis, the statement that sweet clover is the best of all clovers for improving poor soils is undoubtedly true. We should be glad to obtain further particulars of sour clover from our readers.

W. K. M.

THE HONEY-YIELD IN MANATEE CO., FLA.; THE CAUCASIANS RATHER BEHIND THE ITALIANS THE PAST SEASON.

This week I have been requeening a few of my poorest colonies in the out-yard, and about four out of five of the poor ones had a dash of Caucasian—probably $\frac{1}{2}$ of the bees were Caucasian, the rest Italian. One hive that had not made a pound of surplus this summer I found had a fine large Caucasian queen, and about half or more of her bees were well marked. Some of my best Italians made over 100 lbs. I got 2800 lbs. from 42 colonies.

I thought I would requeen all my out bees, but some of them have done so well this poor year I have concluded to cull out the poorest.

I. T. SHUMARD.

Osprey, Fla., Sept. 20.

It will be remembered that, with the strain of Caucasians I had on the island a year ago last winter, they seemed equal if not superior to the Italians as honey-gatherers; and that was our impression during the summer of 1906; but during the past season, 1907, the above letter seems to indicate that the Italians were ahead. My old imported queen, however, died, and we were compelled to use another Caucasian for breeder. She may not have been equal to the original imported queen. During the past summer I found a colony out in our apiary at work before any of the rest, out of the three or four hundred. This colony was also out a little later in the evening. When I called the manager's attention to the colony I said, "This unusual activity is owing either to the Caucasian strain of blood or else it is because they have a young queen that has recently commenced laying."

He referred to his slate and told me I was right in *both* respects. The Caucasian queen, however, that was the mother of these active

bees, had been sold, and we had no means of knowing who got her. It is now pretty well demonstrated that the progeny of certain queens excel others as honey-gatherers; and this may be true of Caucasians or any other race. It begins to look as if the original imported Caucasian queen that I carried to the island in December, 1905, was a queen of more than ordinary value. With the information we now have in regard to the matter, my impression is that the Caucasians are not, as a rule, superior to the Italians as honey-gatherers; but where one makes a business of queen-rearing they are far ahead for getting large numbers of strong healthy queen-cells. No queen-breeders can afford to work without the help of a strain of Caucasian blood to aid him in grafting, getting queen-cells, etc.

A. I. R.

WHY COLONIES OFTEN DIE THROUGH THE WINTER WITH PLENTY OF STORES IN THE HIVES.

EVERY spring there are hundreds of bee-keepers that find many of their colonies dead without any apparent reason. There is plenty of honey in the combs, and every thing is in good shape—but the bees are dead. Other colonies come through so weak that it is almost impossible to build them up for the honey-flow.

There are many possible causes; and, while we could not name them all, we wish to emphasize one or two.

For instance, the colony might not have been strong enough in the fall to keep up the necessary degree of animal heat, so that the individual bees were unable to leave the cluster long enough to reach the stores in another part of the hive. This would account for a good deal of the loss. Weak colonies should be united, for it does not often pay to winter a mere nucleus.

But there is another cause that many have overlooked. Some bees must die on account of old age. If the majority of the bees that make up the cluster in the fall are already old, then it is evident that a large percentage of the bees in that colony will die a natural death during the winter. Furthermore, old bees have not enough vitality, and they will die under conditions that would not prove dangerous for the younger bees.

The remedy is to see that brood-rearing is kept up long enough to give a strong force of young vigorous bees to go into winter quarters. Stimulative feeding should be resorted to if necessary.

Editor Hutchinson, in the September issue of *The Bee-keepers' Review*, comments upon the importance of young bees in the fall; and since his advice is particularly timely, we give it herewith in his own words.

If the bees have not gathered any stores since early in the season, there ought to be some stimulative feeding to encourage breeding, and thus have some young bees for winter. I had a letter to-day from a man in Canada, saying that his bees had gathered no stores since fruit bloom, and the bees had run down in numbers until he was fearful he could not winter them. Last year, here at Flint, my bees gathered no honey after the close of the white-clover honey har-

vest, hence there was not very much breeding late in the season. There were plenty of bees in the hives when put into the cellar but many of the bees were old, and when spring came many of the bees (not colonies) were dead from old age. The bees were all clean, dry, and healthy, but I was surprised to see how few there were in many of the hives. This year I am giving them an occasional feed this month, and probably will continue it a part of next month. No amount of fussing next spring will atone for neglecting the bees this fall.

NORMALITIES AND ABNORMALITIES OF QUEEN INTRODUCTION.

[The following is an extract from the new edition of THE A B C OF BEE CULTURE on the general subject of introducing, setting forth some of the general principles underlying the process. The article attempts to give some of the normal conditions that govern the problem. While some of the positions taken may be the subject of controversy, yet much that is here said seems to be in line with the modern practice of most bee-keepers.—ED.]

Under normal conditions only one queen will be tolerated in a colony at a time. Should there by accident be two, when they meet there is likely to be a battle royal, when one of them will be killed; so it happens that queens are, as a rule, jealous rivals; but there are exceptions. There are conditions, as when an old queen is about to be superseded, when the young daughter may be tolerated in the hive along with her mother, and both laying side by side; but in the course of a few days or a few weeks the mother will be missing. Whether she dies of old age or the daughter kills her we do not know. There are other conditions where two and sometimes a dozen queens will be permitted to stay in the hive; but those conditions seem to be abnormal.

Again, it may be stated that a normal colony of bees will not take a strange queen, even though they have no mother of their own, much less will they accept an interloper when there is already a queen in the hive. We may, therefore, lay it down as a rule that has exceptions,* like all other good rules, that we can not introduce any queen, young or old, to a colony that already has one; and even when the bees have been suddenly deprived of a queen they will not, under ordinary conditions, accept another, no matter how much they may need one, until she has been "introduced." It follows, then, in the process of requeening we are compelled to put a new queen in a wire-cloth cage and confine her there, where the other bees can not attack her, until she has acquired the same colony odor or individual scent as the bees themselves. This usually takes two or three days, at the end of which time the queen may be released and they will treat her as their own royal mother. We do not know how bees recognize each other, or how they can tell a strange queen from their own, except by scent factor.

It is a fact well recognized that a dog can pick out his master from hundreds of others

* If a virgin queen, on returning from a mating-trip, enters by mistake a hive where there is an old laying queen she may, and very often does, supplant the old queen. The virgin is young and vigorous, and more than a match for the old queen full of eggs. Even though the colony odor be lacking, the bees in this case accept the supplanter.

through the agency of scent; nay, further, he can track him if he loses sight of him by catching the scent of where he has walked, in spite of the fact that hundreds of other people may have gone over the same ground. This scent that is so acute in a dog is undoubtedly highly developed in the bee, otherwise we should be at a loss to account for some of the phenomena in the domestic economy of the hive. Hence we naturally conclude that, by the sense of smell, the bees recognize their own mother from a new or strange one.

Again, we learn that, if two queens have exactly the same colony odor after being caged for two or three days in a queenless hive, either one may be liberated and the bees will accept one just as readily as the other. If both be liberated at the same time, one in one corner of the hive and the other in the opposite corner, both will be tolerated by the bees; but once the queens come together themselves there is danger of a royal battle* resulting in the death of one. From this fact we infer that the bees, providing a queen or queens have the requisite colony odor, would accept at any time one or more such queens under many conditions; that, further, when two queens have the same colony odor, if they can be kept apart by means of perforated zinc both queens can continue to lay eggs in the same hive without let or hindrance. This condition will be allowed so long as the colony prospers and there is not a dearth of honey. When there is a disposition on the part of the bees to rob they may destroy one of the queens.

Bees that have been shaken into a box or pan, and then shaken or bumped again and again until they are demoralized or frightened, are much more tractable than those not so disturbed. Such bees if made queenless just prior to the shaking, if confined without combs or brood in a cool place for a few hours, will usually accept a queen at once. The factor of colony odor then apparently does not operate, for the bees are put out of their normal condition.

Another fact worthy of consideration at this time is that young bees just hatched will at any time accept any queen. Therefore, it comes about that, when one desires to introduce a valuable breeder on which he desires to take no chances whatsoever, he causes her to be released on a frame of very young or hatching bees; but consideration will be given to this later.

Another fact worthy of note is that virgin queens, if just hatched, will usually be accepted by a colony, if not too long queenless, without the process of introduction or of caging; but when one of these queens comes to be four or five days old she is very much more difficult to introduce than a normal laying queen. Why this should be so, we do not know.

Having stated, therefore, the basic principles governing the relation of the queen to the bees we can now more intelligently pro-

* We say "danger" of a battle. Queens will not always fight when so put together.

ceed to the methods of introduction, most of which are based on the theory that the queen to be introduced must first have acquired the colony odor of her new subjects.

There are some methods of direct introduction by which the queen can be released without the process of caging; but in the case of queens of any value they should not be employed, and are, therefore, not given in a work of this kind designed primarily for the novice in bees.

A SCORE OF COMMONLY ASKED QUESTIONS.

We are constantly answering questions on the subject of bees and bee culture. Sometimes one mail will bring the same question asked several different times by as many different bee-keepers. Of course, it would not be possible to answer all of these in GLEANINGS, as it would take up entirely too much space, and many of them would be simply repetitions. But we have decided to publish at certain times of the year the answers to the questions that are asked the oftenest, in order that a larger number of our readers, and especially the beginners, may be benefited. The ones which we give below are those having to do especially with the problems encountered in wintering.

1. Should supers be left on the hives during the winter?

No, not unless you wish to remove the inside fixtures and substitute packing material.

2. Will it hurt the bees to open the hives in cold weather?

Yes. Ordinarily hives should not be opened after the cold weather sets in, as it breaks the propolis sealing and permits cold wind to blow through the cracks. If it is absolutely necessary, wait until a warm day.

3. Which are better—sealed covers or absorbent cushions laid on the tops of the frames?

Sealed covers. There was a time when it was considered best to place cushions directly over the frames; but since they often get wet from water of condensation, and freeze, flat covers sealed down by the bees are now recommended.

4. Should queen-excluders be left on through the winter?

No.

5. How can I tell whether there is enough honey in the hives?

By looking over the combs before cold weather comes. There should be an average of three or four pounds of sealed stores in each comb.

6. How much honey does it take to winter a colony?

From 20 to 30 pounds, depending upon the size of the colony. Bees in a cellar usually need less than those out of doors.

7. How can I winter a weak colony?

In a good bee-cellars. But it is generally best to unite the weak ones before winter.

8. Does it pay to give cellared bees a mid-winter flight?

Yes, if necessary. But the best way is to manage so that they will not need such a

flight. As long as bees are quiet, don't disturb them.

9. My cellar has a damp floor; will it do for wintering bees?

Yes, if the damp floor is the only objection. If the atmosphere is dry, the air good, and the temperature kept about 45°, there should be no trouble.

10. Is cork dust good for winter packing?

Yes, if you can get it cheaply. Usually it is pretty expensive.

11. Shouldn't double-walled hives have packing material under the bottom-boards?

Not unless they are raised from the ground, and in many cases it would not even be necessary then.

12. Why did four of my five colonies die that I wintered out of doors?

We don't know, as you haven't given us all of the particulars. Any of the following reasons might explain the trouble: Colony too weak in the fall; bees too old; packing insufficient; location too much exposed; entrance too large or small; queen dead; poor quality or too small quantity of stores; wet packing.

13. How large an entrance should I have for my colonies in eight-frame hives wintered out of doors?

It depends upon the strength of the colony; but $\frac{1}{2} \times 2$ inches is probably not too small. Smaller entrances are now considered better than the larger ones advised several years ago.

14. One of my queens died in January. What can be done?

Introduce another queen if you are so fortunate as to have one. If not, unite the queenless colony with some other weak colony.

15. The packing over my bees is wet. What shall I do?

You should have put on a super cover so that the bees could seal it down. A dry cushion can be placed over this if necessary.

16. How can I keep my bees from flying out when the sun shines, and dying on the snow?

Place a board in such a position that the sun can not shine in at the entrance, thus luring the bees out when it is too cold for them to fly.

17. Can I winter my bees in a building above the ground?

Yes, if the temperature can be kept uniform at 45 degrees. Otherwise you had better not experiment.

18. How can I feed my bees in the cellar?

Place an empty super on the hive, and partly fill it with moistened loaf sugar.

19. How may I know whether my colonies out of doors are short of stores?

If necessary, open the hives and make an examination on the first warm day. But it would have been much better if you had made sure that there were plenty of stores in the fall.

20. Why is sugar syrup preferable for winter food to honey?

Because it is cheaper, less stimulating, and always the same. Some kinds of honey are not at all suitable for winter food.



Texas must now be in the lead as a honey-producing State. Its 1907 crop has been fair; and for producing at least some honey, year after year, I doubt whether any other State can beat it.

To make a success of bee-keeping as a business is what I am trying to do, and this has been a busy season. There are now fourteen apiaries scattered far and wide. If no honey is obtained at one place I ought to get it at another.

It is not how much we make, but how much of that is profit. What does it profit a man if it costs him eleven cents to produce a ten-cent pound of honey, fussing with some of the systems (?) given occasionally in our journals. Get a system that lessens the cost of production.

Honey exhibits are good advertisements. They help to sell honey. Bee-keepers are beginning to understand this better than ever; and the consequence is, nearly every fair will have its bee-department and a generous premium-list.

Requeening should not be overlooked by the honey-producer. Every spring there will be quite a number of queens that "come up missing," and many fail to come up to the desired standard, and this keeps on throughout the entire season. It is caused by allowing old, worn-out, and worthless queens to remain too long in the hives. The remedy is to requeen all such before they become worthless.

The best results in my apiaries are obtained from queens reared the previous fall, and they will do two good years' work; then they should be replaced in the fall, or after the honey season with fall-raised queen. In this way good results should be obtained year after year. Of course, there will always be some that will fail sooner than others, and must be replaced sooner.

For years it has been one of my greatest desires to make my own hives and supers, but "I never got to it." Now I am glad I did not; for of the many, many home-made hives I have seen and used, very, very few meet with satisfaction with me. There are many who make their own hives, and are satisfied with them; but it is impossible to make them so they will always fit snugly as a hive only should. The greatest objection to them here is the yellow pine lumber which either warps or splits, but always shrinks more or less. A super made the right depth

will be $\frac{1}{2}$ inch too shallow later, and the frames rest on those below them. If this shrinkage were the same in all of the lumber, sufficient allowance might be made when cutting the hive parts; but some boards shrink more than others. Besides, the bodies and supers are very heavy. With white-pine lumber at hand I'd make my own supplies. Now I make only the bottom-boards and covers out of yellow pine. They last longer, and are better than the light flimsy ones offered on the market.

Nothing enthuses a bee-keeper more than to be visited by another one of his craft, when a regular convention can be had and ideas exchanged face to face. Such has been my happy lot recently when one of my old college chums while at the Ohio State University together, and also a bee-keeper, Arthur H. McCray, of Duvall, O., "came to Texas" and spent nearly a month here. He came just in time to help me take off part of my crop of honey, some 20,000 pounds, and to be with me night and day, and on my rounds to a dozen apiaries. Yes, and he learned, he said, something of managing apiaries on a large scale, as well as something of Texas. So well pleased was he that he hated to go back. Yes, Texas is a great country, and we know it.

My main sources for surplus are the mesquite-trees and the cotton-fields, cotton being the second of importance in the central and northern part of the State, or throughout the black-land regions. On sandy or light soil cotton produces very little honey. In the picture shown on p. 1321, is one of the Brazos River "bottoms" cotton plantations, some of which contain several thousand acres of cotton-fields. I have two apiaries here, and cotton is the only source, as no mesquite predominates. The yield is good, averaging about 75 pounds of bulk comb honey a year. One year it was over 100 pounds. Honey from cotton is very light in color, the comb very white, and of excellent flavor when well ripened. As soon as cool weather sets in this honey fairly draws out in long strings when handled with a spoon.

"POISONED" COTTON AND BEES.

Several enquiries have come to me from time to time, asking if bee-keepers need fear any danger to their bees where poison is used on the growing cotton to destroy the leaf-worm and other injurious insects. According to several items in some of our leading newspapers there would be no danger; but the facts are that dangerous results might follow. Several serious cases have come under my observation. One of these happened on our own home farm where one of the tenants had applied London purple to about ten acres of cotton to poison the leaf-worm. This cotton was on low land where the leaf-worm was doing the most damage. It being of more luxuriant growth, this cotton yielded nectar more abundantly, and the bees

worked more on it than in any other parts of the fields. The result was, the destruction of the whole apiary in a few days' time. Dead bees could be found everywhere, inside and outside of the hives, as the adult bees suffered as well as the brood and young bees in the hives. This was in 1890.

Another instance occurred about eight years later. A bee-keeper wrote me that he was rejoicing over his apiary of fine Italians which were storing surplus honey from cotton, and that a big flow was on. A week later he wrote again, but in quite a different tone. Paris green had been applied to cotton by a neighbor to destroy the leaf-worm, and it resulted in killing all the bees in the bee-keeper's apiary. Some of the colonies had stored as much as 100 lbs. of honey, and had all been in fine condition. Another case was that of a bee-keeper in Louisiana who lost his entire apiary of nearly 150 colonies from the effects of Paris-green spraying on cotton. In the first and second cases mentioned, the poison was applied in the dry state, or "dusted" on the cotton-plants, while in the latter it was in the form of a spray.

IMPROVEMENT OF BEES.

In referring to the improved strain of bees mentioned in this department, page 831, Mr. Otto Sueltenfuss, of San Antonio, says that this has helped him to account for the different traits shown by queens of this particular strain. He found the queens nearly all prolific, and some of them very much so. The bees in the majority of the colonies of this strain were gentle and easily handled; but a few seemed to show some traits of the Cyprians in regard to stinging. Some queens of this strain produced fine comb-builders, and the best comb-builders generally cap their honey the whitest. He also found that good comb-builders are also good honey-gatherers, which is only natural, as the faster a colony builds combs the more it is able to store. On the other hand, good honey-gatherers are by no means always good comb-builders, and he thinks it a safe plan to weed out the poor queens as much as possible.

The strain of bees referred to was obtained by mating daughters of pure Cyprian mothers to Carniolan drones; then daughters of these queens are mated to Italian drones, thus combining the hustling qualities of the Cyprians, the gentleness and white capping of the Carniolans, and the non-swarming disposition and color of the Italians.

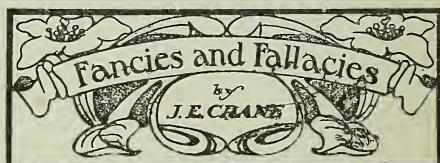
It may not be desirable to try to find better bees by such methods of criss-crossing; but it seems to me that there may be something in it. If the above cross gives good results there may be other combinations even better. But such breeding should be carefully done. Here is a field for scientific work. The bee-keeper is too prone to attempt it in his haphazard way, and to jump at conclusions.

There is no doubt in my mind that we can produce better strains of bees than we have now, and judicious breeding should do it. I

am not a great believer in continually trying something new, unless it has already especial merit. But to try every new thing that comes along is, for those who are trying to make the most out of their bee-keeping, a waste, not only of time but money; besides, it is running a great risk whether such things may prove even as good as the old that has been discarded. I know of several bee-keepers who have ruined their once excellent stock of bees in introducing new blood by buying queens from breeders (?) upon whom they thought it could be depended for good stock.

But if a good strain of bees is once obtained, even careful selection will do wonders in improvement. One of the easiest ways to accomplish this end, for the practical bee-keeper, is to save as many cells as possible from the best queens during the swarming season, and requeening all colonies containing undesirable queens with such cells. Drones of the right kind only should be allowed to fly at such times. The results will soon show.

There are several ways of improving strains of bees, and those who undertake it should decide definitely at the outset just what plan is to be followed. Either a pure strain should be bred up to a higher standard, or the method of crossing several races to obtain the desired results should be resorted to. A great deal of experimentation, of course, is necessary before results are gained; but I would urge that more bee-keepers pay more attention to just this subject, even if it does cost a little at the start. It may mean much in the end. "The improvement of our honey-gatherers" should be the bee-keepers' motto.



Dr. Miller is right as to the value of wet grass to stop robbing; but at outyards we don't always have grass; but I sometimes use pine boughs, weeds, or even old leaves piled against the hive, over the entrance, and it works.

I presume the doctor is right in regard to sheep when confined in a yard of bees. I do not put sheep into a yard of bees, but, instead, put my yard of bees into a sheep-pasture, and it works all right. I believe the sheep learn to crop the feed among the bees at night.

"This year there will probably be offered to the market considerable off-grade comb honey," says the editor, p. 1128. It is near-

ly all yellow this way; and, except for bleaching, I should not have a dozen cases of white honey. With the aid of a bleaching-room I am able to make my crop much more attractive than would otherwise be possible.

And now I don't know but I have got my foot in it. Can any one tell if the use of sulphur in bleaching or for destroying the eggs and larvæ of the wax-moth will injure the combs for food by absorbing sulphur dioxid?

Hold a minute, Mr. Doolittle. I want to talk with you. You say when the honey-flow is on, two bees occupy as much space as three or four did before. Do you mean that they are as large as three or four bees at other times, or that they cluster further apart, and thus take up more room?

Another thing, you say that, if you just fill the empty space above a colony of bees with empty comb they will not swarm. That's just what I did two years ago, but evidently this yard of bees had never read Quinby, and did not understand the proper thing to do; for almost every hive swarmed, or tried to. Some colonies did not even stop to store any honey in the empty combs.

THE QUESTION OF HONEY-LABELS.

I have watched with no small amount of interest the discussions as to labeling bottled honey, and have admired the interest the editor of *GLEANINGS* has taken in the matter, and his efforts to have the rulings of the Department such as will not embarrass either bee-keepers or those who make a specialty of packing honey. With many others I have hoped the use of the phrase "*put up by*" might be allowable, as it seems to fill the bill more perfectly than any other; and I doubt very much if any court in the United States would hold the user of such a label as misleading. The Standard Dictionary says, one use of the phrase "*to put up*" is "*to pack away or preserve; hoard; as, to put up fruit.*" There is no reference as to whether the fruit put up is one's own produce or produced by another person.

Mr. F. L. Dunlap says, in letter of Aug. 7, "*I do not see on what grounds it would be possible for the bee-keepers who bottle their own honey, sell it under their own label with their own names attached, and then, when their own supply of honey is exhausted, buy from other producers, and bottle the product thus obtained, to sell it under the identical label that they used in the first case where they were the actual producers of the honey.*" Now, it seems to me this is making a mountain where none exists; and it seems, further, that it would "*be possible*" to do this very thing; but, of course, much will depend on the label. If I label my honey as "*produced by J. E. Crane*," then it would be misleading to buy my neighbor's honey and put it up under the same label. If I use a label that could be true of both lots of honey, as "*bottled by*," or "*put up by*," then it

would seem to be possible to put up both lots under a common label. And it would seem, further, that, if I can not use a label that will be common to my own produce and my neighbor's, neither can I buy of two different producers and label it the same, although different from my label.

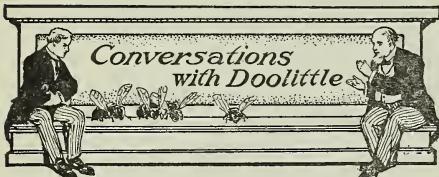
But Mr. Dunlap goes on to say, "*In other words, the phrase *put up by* is not sufficiently explicit to be of much significance to the ordinary consumer.*" This may be true. If so it would naturally follow that it could not be very misleading. Mr. Dunlap says, further, with regard to this phrase, "*It does not differentiate between the actual producer and the one who is not, which differentiation is necessary.*" Well, it looks to me from my view-point as though, if this phrase did not differentiate between the actual producer and the one who is not, then it could with equal propriety be used on both. "*Which differentiation is necessary.*" Why? pray tell. I have been producing honey for more than forty years, and yet can see no good reason why the honey I produce can not be sold in common with other honey of the same grade or quality under a common label. There may be something in the law that makes this ruling necessary, that I do not know about. I wish it could be explained so I could understand it. Let us see how such a ruling will work. Here is a man who does a large bottling business. He is also a honey-producer. He had a crop last year of 10,000 lbs.; but to supply his trade he buys 150,000 lbs. more of, say, fifty different producers, of the same grade as his own. Now, according to this ruling he can sell all of the product of these fifty producers under a common label; but his own he must sell under a separate label. Why?

To differentiate, I suppose, although the honey was all of the same grade.

Now, as I look at it, it would seem as though altogether too much stress is laid on the point of who is the producer. As a matter of fact, as all bee-keepers know, the quality of honey depends much more on the flowers the bees work on than who owns the bees; and it would seem to an old-fashioned bee-keeper that it would be of vastly more importance to label our honey so as to indicate to some extent the flowers it was gathered from, rather than who run it into bottles.

To illustrate, many persons are very fond of clover honey, but care nothing for that gathered from basswood or buckwheat. Some years clover may yield abundantly with but little basswood, while the following year the order may be reversed. If the producer labels his honey the same both years as produced by himself, many consumers will be misled into expecting the same kind of honey, although he has complied perfectly with the pure-food law. On the other hand, if the producer uses a label common to his own and other producers' honey, when his own proves of inferior quality he can buy where the season has been more propitious, and furnish his customers with the same grade

or kind they have been accustomed to, thus more perfectly fulfilling the spirit of the law than would otherwise be the case. I believe all or most persons who bottle honey desire to put up as nearly the same grade or quality from year to year as possible; and their name stands for that grade. So far as I know, it has been the practice for producers, when they wished to distinguish their own honey from their neighbors', to use the phrase "produced by" or "from the apiary" of so and so, which would seem to differentiate their own from all others sufficiently where such differentiation is necessary.



THAT VACANT SPACE.

"Have you the bees ready for winter yet, Mr. Doolittle?"

"Not entirely, Mr. Sanders."

"Why do you answer that way? I supposed that, when you got them ready at all, they were to be gotten *entirely* ready."

"Well, sometimes it is that way; but more often they are mainly gotten ready in August or the first half of September, and the 'entire' part put off till the latter part of October or the first of November."

"Mainly in August! What can you do about getting bees ready for winter in August?"

"Know that they have a good queen, and stores enough for winter, with the combs all in good repair, and the hive in the best possible shape so that the bees can fix their honey and hive all tight and tidy while it is still warm weather. In this way they have their stores all fixed as to sealed honey, and that in open cells all about the cluster, in just the shape they desire it when cool and cold weather comes on."

"What is the difference in this matter? I do not fix mine till I get ready; and then if one colony has more stores than it needs, and another not enough, I take from the one and give to the other, no matter if it is in November. Does this do any harm?"

"Allow me to ask you if it would make any difference with you if some one were to take the roof off your house in November and carry your vegetables which you had stored in your cellar up to the attic, and remove your pantry and dining-room into the parlor, and all such like things, leaving doors and windows open, and unstopped cracks all about the walls of the house."

"Well, I should think it would. But you do not think the bees would suffer as I would, do you?"

"Excuse me; but I think more."

"How could it be?"

"You would keep a fire to dry out things, and keep you warm till you could repair things; but the bees could not repair things till it became warm again; and while they were waiting for the warm weather they must consume honey as fuel to keep warm, and often to an extent above what they otherwise would, to bring on dysentery and death. Late disturbing of bees often brings about serious results, especially where the bees are wintered on the summer stands and the season proves one of continued cold so as to prevent winter flights."

"I had not thought of that, and I guess you are right."

"I believe this to be right, and nearly if not all of our best bee-keepers are in accord with these views. What was your crop of honey the past season?"

"Quite poor. Not more than about 50 sections to the colony, on an average."

"I call that good for this year."

"Did you do better than that with your plan for working at the out-apriary?"

"Only a little. The average was about 67 pounds, which is the poorest of any late year."

"That was considerably better than I got. But I had lots of unfinished sections this year—much more than usual. Did you have many?"

"No—the least I ever had."

"That makes me think. Are you going to answer Dr. Miller's question he asked you on page 1127?"

"I do not remember what he asked me."

"Have you GLEANINGS handy?"

"Yes, here is the September number."

"This is what Dr. Miller writes: 'Bees are believed to hustle in with greater energy to fill a vacant space made between partly filled sections than they will do where they are allowed to have their own way of working, or continually adding from the outside, p. 1075.' Yet, Bro. Doolittle, I understand that you have lately come to the conclusion it is always best to add empty sections over the others. Please tell us why."

"I do remember now about this matter, but had forgotten it."

"Yes; but are you going to answer it?"

"Well, yes, perhaps, some time."

"Well, if you are going to answer it you might as well do so right here and now."

"Why do you say thus?"

"Because Sanders wants to hear the answer. That is something he wants to know about as well as Dr. Miller."

"You said you had lots of unfinished sections this year, did you not?"

"Yes."

"Why did you have so many?"

"Because the season was poor, I suppose."

"But I had the same poor season, and do not have enough unfinished sections for baits for next year."

"I see you are trying to work some racket on me."

"Did you not work your bees on the tiering-up or spreading-out plan?"

"Yes; but what has that to do with unfinished sections?"

"Far more in a poor season than in a good season."

"How is that?"

"From what you just read, which Dr. Miller quoted from my writings on page 1075, that bees will hustle with greater energy to fill a vacant space between partly filled sections, or partly filled sections and the hive below, than they will if allowed to have their own will."

"Yes; but if I understand things aright, we shall secure the more honey just in accord with this energy. Is not this right?"

"Given the assurance, or the insurance (I do not care which way you put it) of a good season, *long drawn out*, then you would be right; but with a season commencing well, with no assurance about how long this commenced-good season would last, as in the past season, then this tiering-up or spreading system of working, resulting in its increased energy, does not give as good results as where the bees are allowed to take their own way of working."

"How is that? I do not see my way clear as yet."

"With a good commencing we have one super one-half to two-thirds full when you come along and lift it up and put an empty one under. With increased energy the bees rush into the under super so as to connect their work between the hive and the partly filled super above, working with much greater vigor than they did before, but at the same time doing less work in the upper super than they were doing before the tiering. Two days later the good season is changed to a poor one by rain or cold windy weather, which continues till the honey-flow is over, in which case you have two supers well under headway, but none of the sections finished."

"Yes, I see that; but would I not have had those unfinished in the first super had I done no tiering or spreading?"

"Not with the same season, for half the energy put into the super two-thirds full would have finished it, so you would have had those sections in salable form, while now you have double the number of sections worked in, with few if any of them in salable form."

"Yes, but this was a peculiarly poor season."

"I know it was; and it is because we seem to have more of these peculiar seasons now than we did thirty and forty years ago that I gave up the spreading plan, and work on the plan of adding at the top the sections which have starters of foundation in them, instead of tiering or adding between the top and brood-combs below, as I used to do."

"I see. But will not the average of the seasons, even now, give the better results by the spreading or energy plan?"

"My experience says no, and that is why I have adopted the other."



THAT SWARM PROBLEM.

If an attempt at an article containing information is permissible in this department, I wish to offer the following. If, however, the reader fails to see any thing of merit in it, please pass it off as a joke.

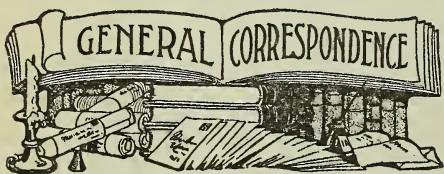
Believing there are many localities similar to mine, I wish to tell how I treat swarms in a way that, so far as I am concerned, solves the swarming problem. Our swarms usually come about the middle of the white-clover flow, and, if hived on starters in a contracted brood-nest, as usually recommended, the results are very unsatisfactory. They will leave the corners unfinished for a time, and later will fill them with drone comb. If crowded enough to finish off the super they were working on they will usually carry pollen into the sections. If given full sheets of foundation they will not finish the super, and will not, as a rule, get enough honey to build up on and winter safely. Then this is too uncertain a method of increase if increase is wanted. After trying every thing I could hear of along this line for a number of years, I hit upon the following, which works out to my satisfaction:

When a swarm comes out I place the clipped queen in a small cage and hang it on a pole or something that can be easily carried. Then when the swarm has clustered on it I allow it to hang there till night so the bees will cool off. Then just as it is getting dark I take the swarm to a colony that is not doing good super work and dump them in front of the entrance. The queen I give back to the hive from which the swarm emerged. This, however, is always requeened later, as a queen that swarms I never keep. The old hive I move to a new locality, and the returning bees will cluster with the swarm, which should be allowed to cluster near the old stand. The super from the old hive should be placed on the hive containing the swarm, and, as a rule, I have to add an extra super to give them room. The vigor with which the whole colony goes to work, and the way they get the honey, is certainly a pleasant sight. I have never tested this by hiving a large swarm with another large colony, but doubt if they would make as much or any more honey than both colonies would have made separately had there been no swarm, but they make much more than any other way that I have ever tested when treating new swarms.

But it is with the weaker ones that the best results are obtained. Take, for instance, two colonies not doing the best of work in the supers—supers half full; the center rows

are partly capped, the outside ones only started. If they are left in this way a few light-weight sections will be the result, and perhaps those near the outside will be warped out of shape and fastened to the fence. But suppose that about the middle of the flow one of them swarms—what will be the result when treated in the manner described? As soon as they have been fixed, and the third super given (I usually put this empty one between the other two), work in all three supers will be carried on with a rush, and from three to four supers of extra-fine comb honey will be the result, where, had they not swarmed, but two supers of poor honey would have been obtained.

If they are inclined to fight when united I smoke them a little. Now some will ask, "Will not this cause the united colonies to swarm?" I never had one do so, and I have practiced this with several colonies a year for four years. They all seem to work with the vigor of any newly hived swarm. If they should do so I would hive them with a colony containing a young queen raised the same year. I have never lost any bees from fighting, nor have I ever lost a queen when colonies were united in this way.



HIVE-COVERS.

How the Alexander Super-covers are Made; Retaining the Heat in the Spring.

BY E. W. ALEXANDER.

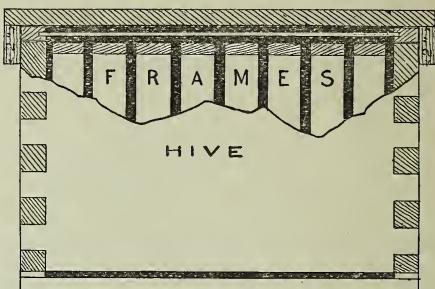
A subscriber wishes to know how the under covers to our hives are made. I will say that they have a rim $\frac{3}{8}$ wide and $\frac{1}{2}$ inch in thickness, with a groove in the center $\frac{1}{4}$ inch wide. In this groove we slide a board $\frac{1}{4}$ inch thick, which leaves a $\frac{1}{2}$ -inch space on each side of the center board.

The tops of our frames are flush with the top of the hive, so when we lay this cover on top of the hive and frames there is a $\frac{1}{2}$ -inch space between the under side of the cover and top of frames. Then when our outside telescope top is put on, which has a 2-inch rim all around on the under side, and rests on top of this under cover, there is another $\frac{1}{4}$ -inch space between the two covers. This, we find, makes an ideal top. It is warm in cool weather and cool in warm weather.

We also use, in addition to this under cover, during spring and fall, a piece of heavy duck No. 8, or, as some would call it, a piece of light canvas, over the top of the frames under the under cover. This helps

much to retain the heat of the colony during the spring, as it furnishes a perfect packing around the top of the hive.

The rims of these under covers are mortised together at the corners, similar to a wood-zinc queen-excluder, and then nailed.



CONSTRUCTION OF THE ALEXANDER COVERS.

They are strong and durable, and at the same time light and handy to handle. With the outside cover well painted, no water or cold air can enter our hives from the top during the spring season.

We are all learning fast that it is very important to retain all the heat we can during early spring. We also close the entrance until it is so warm in the hive on a fair day that the bees will fan the air at the entrance as they usually do in mid-summer. This causes the old candied honey to liquefy, and prevents the bees from carrying it out of their hives, where it is lost.

Old candied honey in a weak colony in the spring is of but little use, and I can not see any more consistency in feeding bees in September in order to induce spring breeding than there would be in feeding our cows in July to increase the flow of milk the following May. Do all you can to retain the heat of the colony to its hive during about nine months of the year, and you will find your bees will be the better for it.

Delanson, N. Y.

TRUE WASPS OR HORNETS.

BY PROF. A. J. COOK.

I enclose a picture of some paper hives. I would suggest that a few remarks from Prof. Cook, to go with the picture, would be of interest.

A. E. WILLCUTT.

Swift River, Mass.

[The above letter and the accompanying photograph were sent to Prof. Cook, whose interesting letter follows.—Ed.]

The "paper hives" illustrated are the paper nests of the common wasps or hornets. These hymenopterous insects are of special interest to bee-keepers, as they are nearest to the bees in structure and habits, and are peculiar in being the best paper-makers among animals, if we may except man him-

self. Indeed, in one respect they are even ahead of man, for they were first by a long period to invent the paper-making habit. The wasps make this paper by scraping old logs, boards, or twigs, and mixing with the scrapings saliva from their own glands, and thus they form a pulp which they fashion with the same mandibles or jaws that they use to do the scraping, into a string, which is laid on to the place where it is to remain, when they thin and spread it with the jaws till it takes the shape that they wish.

Some of the wasps build the nests in the ground or in hollow trees, or other concealed places, while others place them under cornices, or in buildings, while others place or build them right in the open, attached to a tree or other support. One genus, *Polistes*, places its horizontal comb under board or cornice, etc., with no cover. These are so common that all have seen them. Another genus, *Vespa*, often known as yellow-jackets, make several of these horizontal combs, one above the other, and surround all with a paper cover, often of several thicknesses. The one sent by you is of this kind. These are often very large, and are better supported sometimes by being built around branching twigs, like these you have photographed. These nests are enlarged the summer through; and to do this the wasps are constantly tearing the sides away, building on to the combs, and then renewing the covering wall. Thus these yellow-jackets rival the bees in industry.

These paper-making wasps are like bees in being social, and, like bees, may have a great many individuals in the colony by the end of the season. They are like bees also in having queens, workers, and drones, or males in the colony. Each sex is produced as is the same with bees. The drones come as a result of parthenogenesis, that is, the eggs are not fecundated. The queens are developed further as the result of a better table in the early or larval stage, while the workers, less well fed, are not developed sexually, and so are abortive females.

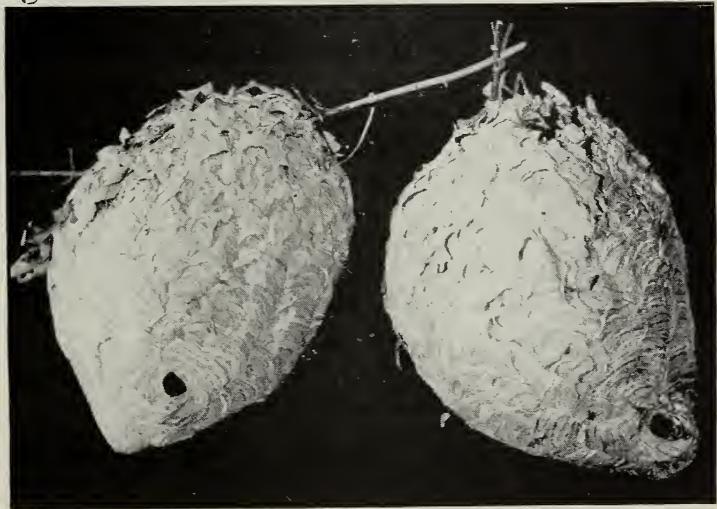
They differ from the honey-bee, and are like the bumble-bees in that all die in the fall but the young queens. In the spring the large queen starts the nest, and at first does all the work. In three or four weeks from the egg-laying, the first wasps hatch out, or

come forth from the cells, and are all workers, and smaller than the queens. For a time all are workers, and these now do all the work, and the queens lay only eggs. In midsummer the unfecundated eggs are laid, and the brood, or some of it, is better fed, and soon the males, also larger than the workers, and the young queens come forth. These fly forth to mate as do our bees; and as soon as the cold of winter comes on, all die but the young queens, which seek some nook where they may hide and be protected from the cold.

There are three ways that we may know these wasps. When at rest their front larger wings fold lengthwise; they all make paper nests, and they are social, like bees, and are unlike bees in being much more hairy, and in not having their hind legs widened for pollen-baskets.

There are three genera of these vespids. The first, *Vespa*, makes the spherical, covered nests, and are known as yellow-jackets and as hornets; the second, *Polistes*, are longer than the *Vespa*, and the abdomen tapers into a short stem-like origin at its base, instead of being broad as it is in bees and in *Vespa*; while in the third, *Polybia*, found only in California, it is still broader, so it looks like a long stem.

All of these wasps are our good friends, as they are engaged all the live-long day in catching insects that otherwise would eat up



PAPER NESTS OF THE COMMON WASPS OR HORNETS.

our plants. We can not measure the good that they thus do. They chew up this food, and very likely add some secretion, and then dole it out sparingly to the larva workers, and give it liberally to the young of the prospective queens.

These wasps are like bees in another respect—they have very effective stings which they are as free to use in self-defense as

are bees. They are cruel stingers, but are not likely to sting if not molested. I had a fine nest of the big white-faced hornet, *Vespa maculata*, one year close by my door, and used to go repeatedly close to the opening and watch the wasps, and never was I disturbed. I could have brought on war speedily by a jar or a quick motion. I was very careful not to do so.

These wasps not only feed on insects, but like fresh meat and blood, and so are often seen about meat-shops. They also like nectar and the juice of fruits, and so are wont to pierce grapes, apples, pears, etc., and so do harm that is often laid to bees, as the latter do not attack the fruit till wasp or bird has made the wound and caused the juice to flow. In this way wasps are often annoying; but we must remember that they do untold good in destroying our insect enemies, and in pollinating fruit and other bloom, and must not charge their evils against them with no account of the much greater benefits.

There is one thing more that shows that these earliest manufacturers are brainy fellows. We may tear the roof off their nests by raising the board that holds it, and they will commence at once to reroof it, though this is altogether different from their common work. They seem to show some power to think and to plan in a way that is not their wont.

Claremont, Cal.

A YOUNG HELPER IN THE APIARY.

BY G. W. KELLER.

I am sending you a photo of my apiary, showing you a bee-helper, a girl ten years old. She can catch and cage queens and bees as fast as any man, and she does it without veil or gloves. She is holding a frame now. She has been with me ever since she was three years old, and has learned

ed the knack of the business. She expects to try queen-rearing.

King's Creek, N. C., July 18.

LIQUEFYING HONEY IN 60-LB. CANS.

No Vent Necessary if the Honey is not Overheated.

BY G. C. GREINER.

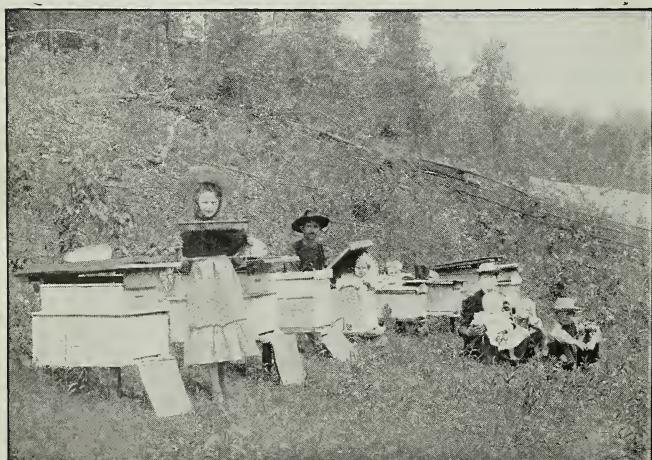
Mr. Atwater's utterances on the above subject, pages 334, '5, are not entirely in harmony with my views and experiences. I always enjoy Mr. A.'s writings, coming, as they do, from the pen of an experienced bee-expert; but, like the rest of mankind, he is not infallible; his article above mentioned is open to a gentle criticism on several points.

The trouble he speaks of, in the line of wasting, running over, exploding, burning, etc., is all caused by overheating. If the liquefying process is not hurried too much, if as little heat as possible is applied, no trouble of this kind need be encountered, and the honey will be all the better for it. If any of my honey had been subjected to a temperature that would burn a person I should consider it a spoiled and wasted lot for my trade. I would not offer it to my customers. Occasionally I have, by neglect, overheated honey, allowing it to come near or quite to the boiling-point. Then it has that flat, inferior taste. The best part of it, its fine flavor, is gone.

A 60-lb. can of honey can be liquefied with the top left on tight, the same as a glass bottle, without the cork being drawn, providing it is done very gradually. I have done both successfully with moderate heat. The cubical contents of a square straight-sided receptacle will increase sufficiently to allow its contents to expand slightly by its sides and ends bulging out. An explosion can occur only when the temperature is getting too near the steam-generating point. But, to be on the safe side, Mr. A.'s suggestion, not to open the can until cool, should be heeded.

Mr. Atwater's lifting arrangement is undoubtedly a great help in handling cans; but it proves that the complaints and suggestions of "common-sense bee-keeping" are not entirely without foundation. In my estimation a piece of clothes-line, long enough to reach several times around the can, and tie, will do just as well, and be much simpler and fully as handy.

Some of Mr. A.'s sug-



APIARY AND FAMILY OF GEO. W. KELLER, KING'S CREEK, N. C.



A THOUSAND-ACRE COTTON-FIELD IN TEXAS.

—See *Bee-keeping in the Southwest*, page 1313.

gestions are not very commendable. He himself admits it by cautioning, "But don't tell any one." Secrecy is always a hiding place, and I would strongly object to any manipulation that would in any way be detrimental to my business if made public. I would not object—in fact, I should enjoy to have a crowd of my customers follow me up in every move I make in the production of extracted honey, from the hive to the retail package. I should consider it a most helpful advertisement.

Mr. Dayton's can and hood scheme, page 182, is all right providing our stock of granulated honey is in shape to be readily accessible; but if we should wish to melt up honey in 60-lb. cans and save the cans, we should have to do it in some other way. It seems to me the amount of work that is required to dig out the granulated honey, and then have so many dishes to handle when filling the retail packages, would be quite an objectionable feature to Mr. D.'s *modus operandi*.

La Salle, N. Y.

BOTTOM STARTERS IN SECTIONS.

Is it Advisable to Do Without Them? the Proper Dimensions.

BY DR. C. C. MILLER.

A correspondent who has not made a success with bottom starters in sections asks to have some questions about them answered in GLEANINGS. Before doing so it may be well to say that bottom starters are not absolutely essential. Indeed, a section may have in it nothing more than a triangular starter of such small size that the cost for foundation will be only a tenth as much as where top

and bottom starters entirely fill the section. But I am in company with many who think it a loss instead of a gain to attempt to economize on foundation in that way. If sections are not to be shipped any considerable distance, there is not the same need for bottom starters as when long shipment makes it important that the comb be securely fastened to the bottom-bar of the section.

Some say they can find no need for bottom starters. If any one can have his sections filled out just as well in every way without them, it may not be advisable to use them. Still, it must be remembered that there is no additional cost for foundation if the section is to be filled any way. It costs no more to fill it with two pieces than with one. The only difference is the labor of putting in, and it would be a serious mistake to suppose that it takes twice as long to put two starters in a section as to put in a single starter. There is no additional picking up of the section or laying it down; the bottom starter is put in, and then the section is quickly turned over and the other starter put in before the section leaves the hand.

I'm not sure I understand how some can get as good work done without the bottom starters, unless it be by crowding the bees at least a little in the supers. This I think objectionable on two grounds. One is, that crowding tends toward swarming. The other is, that it tends to make the bees use honey to make burr-combs. On the whole I think I should lose money to do without bottom starters. And now let me answer specifically the letter of my correspondent.

More than twenty years ago, when I wrote "A Year among the Bees," I had had little experience with bottom starters; and as I was the originator of the idea I had only my

own experience to go by—at that time I wrote that a bottom starter should be not less than an inch in depth. Further experience showed me that so deep a starter would too often lop over, and now for years I have used nothing more than $\frac{1}{2}$ of an inch; so when you use such a very great depth of bottom starter as $1\frac{1}{4}$ inch, you may be very sure it will not maintain an upright position.

The size and shape of the upper starter has something to do in the case. Your top starter is a "triangle coming down half way." That leaves at least $\frac{1}{2}$ of an inch between the upper and lower starter—a space so large that the bees will not recognize that there is any particular relation between the two; or if the bees should attempt to build the two together there is abundance of time for the lower starter to topple over before the upper can be built down to it. But if the space between the two starters is not more than $\frac{1}{4}$ inch, the bees seem to understand that their first work is to cement the two together, and they are not slow about doing it.

Even with only $\frac{1}{4}$ inch between the two starters, if the upper starter is triangular the two can be built together only at a single point at first, and before the outer parts of the lower starter can be fastened to the upper they may be somewhat demoralized.

The weight of the foundation makes a difference. The thinner the foundation the less firmly it will stand up. I use "thin super," there being other reasons why "extra thin super" is not so satisfactory.

Understanding these requirements in the



THE LID OPENED WITH THE TREADLE.

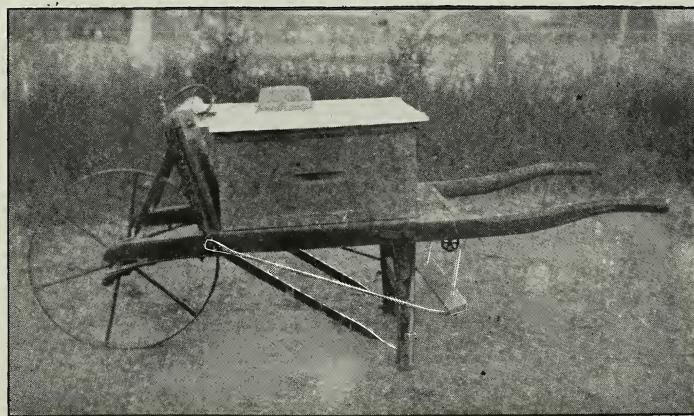
case you will probably have no trouble if you act in accordance therewith. Cut square starters of thin super foundation, of such size that the combined depth before they are fastened in the section shall be $\frac{1}{8}$ inch less than the inside depth of the section. If you fasten your starters with a hot-plate machine, it is likely to melt away a little of the starters, and the space between may be anywhere from $\frac{1}{8}$ to $\frac{1}{4}$ inch.

LOSSING'S COMB-CARRYING BOX.

BY WILLIAM LOSSING.

The accompanying engravings show my newest style of the detachable automatic cover, mounted on a Daisy wheelbarrow, as described in GLEANINGS for Oct. 1st, 1906. The device is used for quickly closing the lid over a comb-carrying box on a wheelbarrow, so as to prevent robbers from getting at the honey. The small box shown is a cage for catching and confining the robbers.

This is the third one I have made, and it quite fills the bill. A few days ago I extracted all



WM. LOSSING'S AUTOMATIC ARRANGEMENT FOR CLOSING THE COMB-CARRYING BOX ON A WHEELBARROW,

day with a strong wind, and it kept the bees down to a minimum.

Phoenix, Ariz., June 27.

[Mr. Lossing has a good thing; and the idea of having a robber-trap to catch stray robbers which, unless taken care of, would be the cause of a great deal of annoyance, is also excellent.—ED.]

CHAFF HIVES.

Colonies in Such Hives go Through the Severest Winters Without Loss.

BY THOS. H. CLARK.

In reading GLEANINGS, p. 93, I notice Mr. Stanley says the "chaff hive" has seen its day. I don't agree with him on this point. As I never used the Danzenbaker hive I know nothing of its merits for wintering or for producing honey.

The winter of 1903 was a very severe one for bees. My colonies were packed in chaff hives. They had brood in January, February, and March. My first swarm was on May 8. That winter two-thirds of the bees in this locality perished, all of which were wintered on summer stands. Not one colony in this section that I know of had any protection, either by packing or in cellar. They were also well supplied with stores; three or four of the outside combs were frozen solid. The cause was nothing more than continued extreme cold weather. The hives were of various makes, including the Danzenbaker hives. What few happened to pull through were late in getting built up, as the first

swarms from them were the last of May and in June, while my last swarm issued May 23. I never lost a colony of bees wintered in a chaff or planer-shaving-packed hive. Mr. Stanley speaks of its requiring several days of warm weather to warm up a chaff hive sufficiently to have the bees fly. This is new to me. Is not a colony properly packed in a good chaff hive already warm? In my experience bees so packed need only a few hours of the first warm day when I find all of my bees flying in fine shape. I have never failed to find bees flying from my hives on the first fine day if warm enough, even if the day previous had been too cool.

I do not wish to have it understood that I am condemning the Danzenbaker hive nor Mr. Stanley's explanations of the hive. For wintering it may be all right for most locations; but I would say to him that, if he were situated in my location, about two miles from the south shore of Lake Erie, to make much success in wintering bees without loss he would soon find he would need some protection for them other than the summer stand, wintering in hives of any shape.

Ashtabula, O.

A COLONY OF BEES THAT BUILT COMB AND LIVED IN THE OPEN AIR.

BY M. A. SALAZAR.

I inclose a picture of a colony of bees that was discovered on the 11th of June by my boy, six years old, about 130 feet from our back door. When we cut them down, on the 12th, they had a good bit of honey, eggs, and larvae, and a few cells of sealed brood.

Falfurrias, Texas, June 17.



A COLONY OF BEES THAT BUILT COMB, AND LIVED IN THE OPEN AIR.

[It is not often that bees hanging on a bush or tree will build combs like this. However, if they remain over night and then depart for a more permanent home one may find little spurs of wax clinging to the limb or point of support. In rare instances it happens that a colony does not seem to have any location picked out in advance. During their state of uncertainty they will begin comb-building, and this almost immediately suggests the idea of permanency. The illustration herewith is a case of this kind. Such a colony out in the open is almost sure to die from exposure in our northern climates.—ED.]

DEEP SPACES UNDER BOTTOM-BARS.

Slotted Dummies to Contract this Space
Without Reversing Bottom-boards.

BY DR. C. C. MILLER.

I think it is no presumption on my part to claim to be a pioneer, if not the pioneer, in the way of advocating a deep space under bottom-bars. So-called deep bottom-boards are now in common use, generally $\frac{1}{2}$ inch deep, but I want nothing less than two inches for the part of the year when deep bottoms are needed.

During the time when bees are building and storing, it will not do to give the bees too much room below bottom-bars. To meet the want for a deep space part of the time and a shallow space at other times, I invented the reversible bottom-board. It may seem a trifle inconsistent for a man to go back on his own invention; but reversing bottom-boards twice each year makes a good deal of lifting, and I thought I could avoid that by having a plain bottom-board two inches deep, not reversible, but having the space partly filled during the time of year when not needed. So I put in a false bottom, $1\frac{1}{2}$ inches deep, a little before the honey-flow, and took it out when the honey-flow was over. It was simply a shallow box made of thin stuff, turned upside down. It worked nicely, only if I left one end open, as I did at first, the bees sometimes filled it with honey.

It troubled me to think that I couldn't leave the bees the whole space during the

I could at least compromise the matter, and instead of the box I put in what may be called a bottom-rack, as shown in Fig. 1.

You will see it is very simple. Two pieces, each about 18 inches long, lie parallel, and upon these are nailed pieces 10 to $10\frac{1}{2}$ inches

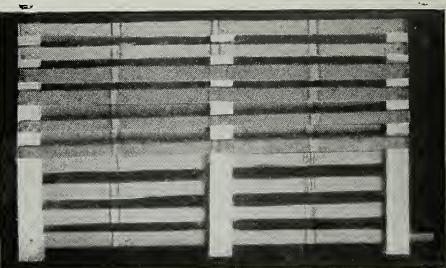


FIG. 2.—ANOTHER FORM OF THE BOTTOM-RACK.

long, with a space of about $\frac{1}{2}$ inch between each two pieces, the whole being of such sized stuff as to leave a space of $\frac{1}{2}$ inch between bottom-bars and rack. Any old stuff will answer, and you will see in the picture that there is no regularity about the width of the pieces. Just saw off boards in $10\frac{1}{2}$ -inch lengths, and then split up with an ax. For a year or more some of these bottom-racks have been in use with much satisfaction.

Not only is it easier to put in one of these racks, or to take it out, than to reverse the bottom-board, but I think it is better—better by the increased amount of air it allows under the bottom-bars.

I think this can be improved. The problem is to try to fill up that two-inch space with just as little of anything but air as possible, and at the same time prevent the bees from building below the bottom-bars.

Illustration Fig. 2 approaches what I think is the ideal bottom-rack. There are three cross-pieces, each $10\frac{1}{2} \times 1 \times \frac{1}{8}$; and wood separators about $16\frac{1}{2}$ inches long are split into pieces a little more than $\frac{1}{2}$ inch wide and nailed on to the cross-pieces about $\frac{1}{2}$ inch apart. The strips are nailed on below and above, break-joint fashion, as you will understand by looking at the picture. In order that the construction might be more clearly shown, the top strips are left off in the lower part of the picture. Of course, the strips must be nailed on here to complete the rack. Underneath, at each side, is a rider upon which the bottom-rack is nailed, these riders projecting an inch or so at the front end of the hive, for convenience in drawing out the rack. At the lower right-hand corner you see one projecting end. Unfortunately the other doesn't show. Thickness of rider is $\frac{1}{8}$ inch, which makes, as you will see, $\frac{1}{2}$ in. between rack and floor, and $\frac{1}{2}$ between rack and bottom-bars.

This last bottom-rack has never been put into actual use; and although I think it will work all right, one never knows for certain till the opinion of the bees has been obtain-

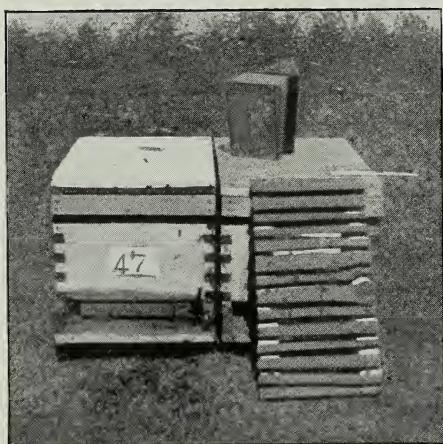


FIG. 1.—DR. MILLER'S BOTTOM-RACK TO BE INSERTED UNDER THE FRAMES TO PREVENT THE BEES FROM BUILDING COMB IN THE 2-INCH SPACE.

summer, making it cooler and pleasanter for them; but if I did so they would build down under the bottom-bars, and that wouldn't do. Finally it occurred to me that

ed. I don't know yet for a dead certainty whether bees will not build in so large a space as $\frac{1}{2}$ inch below the brood-nest; and if they do, then the thing must be changed. If it works all right you will easily see that it will interfere very little with free air under bottom-bars in hot weather.

In the fall, or any time after storing ceases, the bottom-rack is taken out, and during winter the entrance is left wide open; but in the spring, just as soon as the hive is set on its stand, the entrance is closed as seen in Fig. 3.

The board that closes the entrance is $12 \times 4 \times \frac{1}{2}$, fastened in place by two small nails partly driven in. At the right-hand lower corner of the board you will see a hole about an inch square—perhaps less. At the left-hand lower corner it looks like a hole, but there's no hole there—it's merely a shadow. I think that closing down to this small entrance before the bees begin to fly, after being taken from the cellar, has no little tendency to prevent "drifting" of the bees—that is, a number of the bees settling on some particular hive not their own. At any rate, years ago, when I had shallow entrances I wasn't troubled with "drifting." After adopting deep bottom-boards and allowing bees to take their first flight with entrances



FIG. 3—HOW THE ENTRANCES ARE CONTRACTED IN THE SPRING.

wide open I did have trouble that way, which trouble has ceased since using the small entrances shown in Fig. 3.

The entrance-boards are taken away when the smallness of the entrance seems to dis-

commode the bees; and unless a colony is very strong, that does not happen so very long before time to put on supers.

BUILDING UP WEAK COLONIES BY GIVING THEM YOUNG BEES.

BY LOUIS F. WAHL.

This spring I had some very weak colonies, each consisting of a queen with only a small handful of bees and about two square inches of brood. We had cold rainy weather all through the month of May, and ice formed even as late as the 25th. To let the little colonies go for themselves meant certain death; and to build them up

—that was the problem to me.

I read of the Alexander and other methods; but this time I happened to think of something new which proved a great success. My first thought was to supply more bees; but I was afraid these strange bees would kill the queen, so I endeavored to give young bees only. I went to a strong colony, on a warm day, and shook the bees off from three or four combs into a hive-cover, shaking them slowly, being careful to see that the queen was left in the hive from which I took the combs.

By shaking slowly the old bees took wing and flew back to the old hive, while the younger ones remained in the hive-cover. I then carried the young bees, about a pint, over to the weak colonies, and let them in at the entrance. To-day, June 12, those little colonies that would have died have two frames of brood, and are prospering.

Chili Center, N. Y.

EUCALYPTUS.

BY C. F. ENGLAND.

On page 327 I notice an article by W. K. Morrison, stating that it is rather difficult to get literature on the subject of these trees. The New Zealand government published a most valuable book in 1905 entitled "Tree Culture in New Zealand," by Henry J. Matthews, chief forester. It can be obtained from the government printer, Wellington, N. Z. The price is 60 cents. The book contains 126 pages of print, and 64 plates from photos, and it fully describes the methods adopted in raising young trees, transplanting, etc. It states that the blue gum of Tasmania is now taking an insect blight in some parts of the colony; that it will not stand the severe frosts in certain parts of the South Island, and extensive planting of the blue gum has practically ceased in New Zealand.

Mr. H. J. Matthews gives the following in their order of hardiness as observed by him:

E. pauciflora ascends to 4000 feet in Tasmania.

E. gunnii ascends to 5600 ft. in Australia.
E. coccifera ascends to 4000 feet in Tasmania.

E. Urnigera suffers little damage in Scotland, York, and Devon from frost.

E. Muellerii withstood 26° of frost in Otago, New Zealand.

E. Stuartiana, fastest growing of all hardy eucalypts.

E. Sieberiana, small plants have withstood 20° of frost.

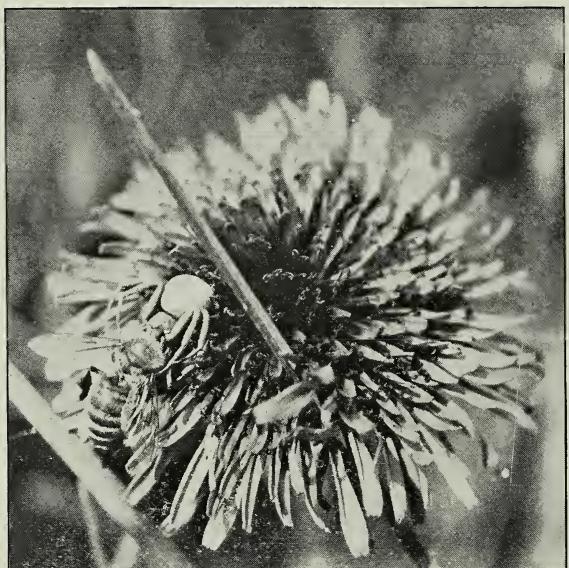
E. amygdalina, small plant, and grows in Tasmania at 4000 feet elevation.

E. regnans has withstood 22° of frost in New Zealand.

I have no knowledge of the value of these trees for honey-bearing, but perhaps Mr. I. Hopkins, New Zealand Government Apriarist, Wellington, N. Z., could tell us.

My bees work on the blue gums around my house in latitude 40°, and I believe the honey they gather is very nice.

Tawanui, N. Z., April 12.



A YELLOW SPIDER CAUGHT IN THE ACT OF KILLING
 A BEE.

THE YELLOW SPIDER.

A Formidable Enemy of the Bee.

BY CHARLES HECHT.

The engraving shows what sometimes happens to bees on dandelions. The spiders are of the same color as the dandelion, and they catch the bees by the neck and suck all the honey from them. I don't think they eat the bees. Afterward the bees are found to have lost their stings.

Rockford, Wash.

REMOVING BEES FROM BUILDINGS.

A Few Cases Treated by an Illinois Bee-Doctor.

BY M. L. BREWER.

Ours is a prairie country, hence hollow trees are not convenient at all times for abounding swarms; so any opening around the dwellinghouses prove attractive to them; and when they become troublesome, Brewer the bee-doctor is sent for. Armed with his outfit, consisting of smoker, veil, gloves, saws, chisel, and hammer, he seldom fails to give relief as well as a stock of genuine sweet. A few cases treated might interest some workers in that line.

Three years ago this summer I was called to a home where the bees had taken possession of an unused chimney. The house being two stories high, with a steep roof, it was with some difficulty that I built staging up so I could reach the peak of the roof; and

when at the point I found that the mason, in building, had failed to fill the joints properly with mortar, which furnished an entrance to their brick abode. After removing the board covering I found about ten pounds of pure white honey. During the past fall, carpenters were sent to the same house to repair the portico, but returned, saying that when Brewer had done his work first they would return.

We found the swarm between the plaster and upper floor, and well stocked. So after removing the weather-boarding I began removing the combs, the space they occupied being 8×16 inches, with 16 feet to work in. As the combs got further away I got a trimming-knife, the handle and blade being about three feet long, slid a piece of the weather-boarding alongside the combs to let them drop on as they were cut loose, till I could draw them out. About 25 lbs. of honey was taken. The last combs took the full reach of the knife and arm to cut them loose.

Here is another case. A wagon at the side of the house, with a ladder 16 feet long set in the box, furnished a way to reach the eaves of the roof, where I removed three rows of shingles, then with hammer and chisel I cut away enough of the sheeting-board to get to the opening in the old-fashioned box cornice, where I found about 50 lbs. of as fine honey as it was ever my privilege to take in chunk form. That was two years ago this summer, and last year another swarm took up quarters in the same place. In a humble little home with outside boards perpendicular, in a four-inch space

between walls, I got 15 lbs. for good old auntie to enjoy.

The past summer I was called to a brick house where a colony had been for a number of years. The joists between the floors extended to support a porch. Mortar had loosened around the sides of them, and allowed an entrance. Either a castoff of their own or some other took up quarters under the same porch (which happened to be the one principally used by the family); then the trouble began. There was no way to make an entry but through a brick wall or tear up hard-wood floor. I saw no way but to close all entries and leave them to their fate. I am sorry to say that, in all these cases, it meant the destruction of the bees, as the season of the year or conditions were such that it was next to impossible to save them. As to charges for my work, I count time from leaving home till I return at 30

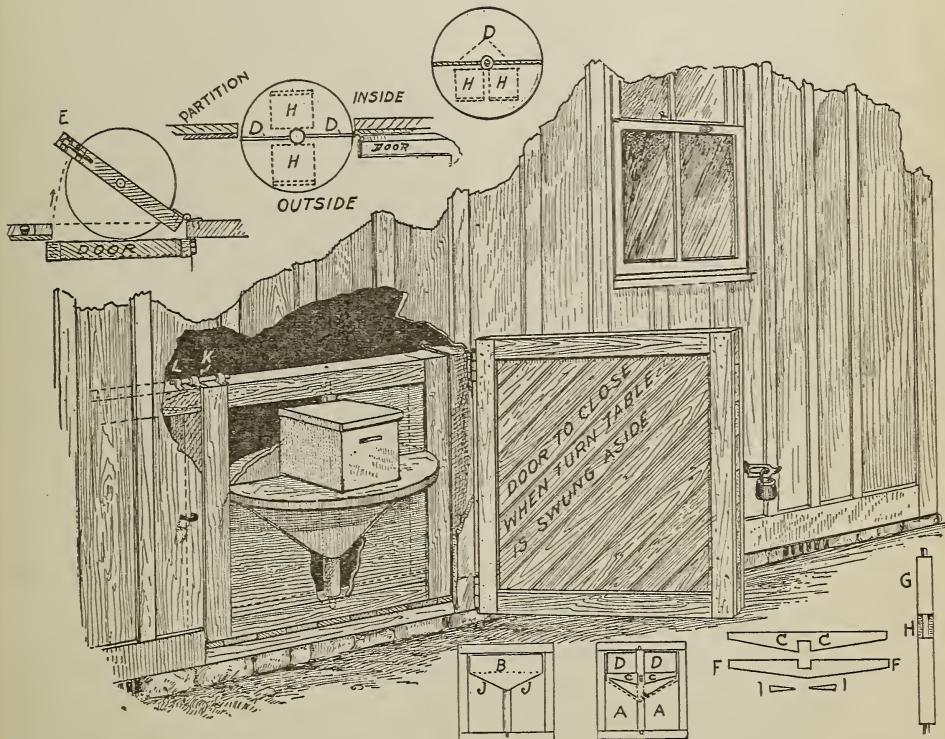
bees, and a queen, the bees that can not get back into their old quarters will unite with the bees in the hive. In the course of three or four weeks nearly all of the bees will be out of the building, at the end of which time the bee-escape is removed, when the honey will be robbed out and placed in the hive. This may then be removed. There is thus no mutilation of the building.—ED.]

A TURNTABLE FOR PASSING FRAMES IN AND OUT OF A HONEY-HOUSE.

BY E. P. ST. JOHN.

I inclose a sketch of a device for putting supers in my honey-house.

The man in the apiary can wheel his supers up to the building and set them on the turntable, and, after giving it half a turn,



TURNTABLE FOR PASSING SUPERS IN AND OUT OF A HONEY-HOUSE.

A, A board to close space below table; B, board to close space above table; C, F, turntable arms and wedges; G, shaft; J, brace below table; E, turntable with its hinged frame pushed in to enable outer door to close.

cts. an hour, parties to furnish conveyance unless it is where I can use my wheel conveniently.

Philo, Ill.

[You do not say any thing about the use of a bee-escape over the entrance into the cavity in the building so as to trap the bees out, and into a hive with its entrance close by. If this hive contains a frame of brood,

the supers will be inside. When the operator inside has his frames extracted and replaced (he might give a tap on a bell), the man outside wheels up another load, setting them on as before; give another half-turn, honey is inside, empty supers outside.

Alpine, Cal.

E. P. ST. JOHN.

[While this plan would undoubtedly be successful, yet it would seem like a pretty

expensive arrangement for an apiary unless it were one conducted on a very large scale. For extracting-yards of any ordinary size the sliding-door plan described on page 1574 of the Dec. 15th issue for 1906 would be more practical. It may not be true in this case; but sometimes a labor-saving device costs more than the labor which it saves.—ED.]

THE PLURAL-QUEEN SYSTEM.

Some Doubts Expressed as to the Benefits to be Derived from Such a Plan.

BY ABRAM TITOFF.

GLEANINGS has devoted a great deal of space to the discussion of the practice of what might be called "the two-queen system." This magazine, with its world-wide circulation, succeeded in interesting even foreigners in this question. In proof of this I can point out that I received some inquiries from Russian bee-keepers. They ask me how we can do such a thing as to keep two queens in one colony, and also what benefit can be obtained from it.

So far as I can see, all the literature on the above-mentioned subject gives us nothing but the report of the possibility of having, for some time, two queens in the same colony; but no one as yet tells us in detail whether it is really possible to put it into general practice and obtain good results from it.

I am, personally, very much interested in this question, and should be greatly pleased if any one would tell me the full details of practicing the two-queen system, and also about the profit that could be derived from it.

While waiting for such information I wish to express a view of my own on the subject. I confess that I do not believe that much benefit can be obtained from the practice of the two-queen system, or, perhaps, it will be more correct to say that I do not believe that the two-queen system could be put into general practice with satisfactory results under ordinary conditions. Speaking so, I base my doubts on the fact that it would not be possible to keep two queens in the same colony for the greater part of a year. They could be kept there for a limited time only, for a few weeks during the heavy honey-flow; but I do not think it will be practical to keep two queens at that time. We do not need them then. There are many bee-keepers who, during the heavy honey-flow, allow even a single queen the freedom of only two or three frames, in order to obtain more honey.

I am trying to get along with my bees according to the laws of nature, and I do not believe either in the limiting of the action of a single queen or in having another one at the time of a heavy honey-flow, for I know that the bees which will hatch 20 days later, or those which will be able to fly into the field after the honey-harvest is over, do not

amount to very much. It is true we need young bees for winter; but one queen, if she is good, is quite able to produce a sufficient amount of these.

Some will say that we need two queens in the spring to build up colonies to get ready for the harvest. I also deny such assertion as impractical. The colony in the spring does not need two queens. It needs the warmth and the food more than any thing else. If a colony lacks these two things you can not help it, even by introducing half a dozen queens.

No matter how strong a colony you prepare for winter, it naturally comes out somewhat weaker in the spring, and it is often observed that there are not enough bees to attend and warm the eggs and larvae that are produced by one queen. The colony is not in want of eggs, but the attendants for them. We are aware of the fact that a queen is able to lay, say, 3000 eggs in a day, on an average; but in the spring they lay much less than that because there are not enough bees in the colony to clean the cells, to nurse the brood, and to go to the field. Put the colony in the most favorable conditions in this respect and you will see that a good queen will be able to supply a colony with the needed amount of eggs. Remember that it was the good queens which forced one of the most practical bee-keepers of this country, Mr. Charles Dadant, to enlarge the frame and to adopt a larger hive, and it was done for the purpose of giving room enough for the action of a good queen. From my own experience I also know that a good queen is able to produce bees enough to gather 480 lbs. of honey in one season (in California), and therefore I think the only thing we need to do in order to get a strong colony is to have one good well-developed queen of good strain, instead of bothering ourselves about assistant queens, especially as, after all, the benefits of the practice are at present very doubtful.

I will not speak at length about the difficulties of introducing another queen into the colony, and the difficulties of saving reserved queens during the winter; but in conclusion I wish to point out one more thing: When we intend to help the bees by our own labor we must do it according to the laws of nature, and we ought not to interfere with their life as far as this interference will break these laws, and the two-queen system does break them. We know that such a thing as the presence of two queens in one colony, when the latter is under ordinary conditions, does not exist. When a colony prepares to swarm, the old queen goes out from the old hive long before the young one is hatched; and if a colony is not inclined to issue the second swarm, the first young queen, immediately after hatching, destroys all the other queen-cells that are in the hive, and remains alone to govern it. If a colony did need two queens it would seem that it needs them after swarming more than at any other time to develop the strength of the colony and to maintain the former dignity of the commune. Yet in nature we never meet with such a state of

*This article, as will be seen, was written before the article by E. W. Alexander was published in our issue for Sept. 1, page 1136.—ED.

affairs; therefore, we may conclude that the second queen would be of no advantage whatever.

Ioamosa, Cal., Aug. 2.

BEE-KEEPING IN THE WEST INDIES.

How it Differs from American Methods;
Brood-rearing in Winter; Negro Labor.

BY A. BUTSCHE.

Although an article from the West Indies is not very likely to interest the readers of GLEANINGS particularly, there are certain items which, thanks to our continued warm weather and long honey-flow, we can more easily test than can be done in colder climates.

We notice, for instance, that there are quite different opinions prevailing concerning the use of queen-excluders. Some, like Mr. Greiner, claim that excluders considerably interfere with the crop of honey; others find them useless, as their queens never lay in the supers. The only reason I can assign for the fact that some bee-keepers have no trouble with brood in the supers is that their colonies, on account of winter losses and short honey-seasons, are never really strong. Our colonies slacken brood-rearing in December and January. The result is that, during the logwood flow in February, they are not strong enough to rear brood in the supers, although they will draw combs and store honey in two or three full-depth supers at one time. But when we come to June and July, talk about queens not going into the supers! Have I not met them crawling over the top-bars of a fifth full-depth super with eggs and brood all the way down to the bottom-board? A man here, after using excluders for one season, would no more dream of keeping bees without them than of keeping bees in box hives. Talk about Mr. Green having from one to twelve queens trespassing in the supers! I'll bet my life that, if I were to remove all my excluders, in less than three weeks there would not be a single broodless super in any of my apiaries.

Another item that interested me very much was the numerous hive-lifting devices brought out of late. I can see no earthly advantage in them in a country like this, where you can get a dozen iron-headed Congo niggers to carry you a house 15×20 , three miles away, on their heads, for 10 shillings 6 pence. And then, what about the danger of one of those hive-lifting devices toppling over with five heavy full-depth supers hanging at the end of it? A man would be a fool if he ventured to set one of those engines a-going before making his testament. I think hive-lifters would just make matters worse. There are so many things already a poor fellow has got to hold with only two hands that I do not see how I could operate a hive-lifter unless it could be done with the teeth. If God in his wisdom had wished the generality of men to be bee-keepers, I should not be surprised

if he had given us a third hand. He might even have judiciously added another pair of legs, especially if he had meant us to keep hands.

Bee fever is a comparatively new malady here. The place was first infected when Mr. Morrison passed here lecturing on bees. I happened to be in New York at the time; but on my return, some months later, I unconsciously caught the disease by passing one day round the corner of the building in which Mr. Morrison had been lecturing.

Mr. Alexander's articles leave one simply dumbfounded. Several queens in one colony at the same time! I think it was a pretty well established custom in hive politics that, when one queen came to the throne, she invariably killed her sisters, and even mother, to reign undisturbed, exactly as a sultan of Turkey would strangle all his brothers at his advent in order to cut short all plotting to dethrone him. We all have been accustomed to look upon a hive as a perfect specimen of the most absolute monarchy. If Mr. Alexander goes on like that I should not be surprised if, one of these good days, all of us poor bee-keepers should wake up millionaires. He seems to be wielding the magic wand, for at each stroke there is something more extraordinary turning up.

How strange there should be at the present time so many bee-keepers with endless associations and publications, especially in France and Germany, where, 20 years ago, one might have roamed about the country for months without ever stumbling over a hive! In all my wanderings I have met a hive but once before keeping bees myself. It was in Brittany (France), during the dreary years of my *oligies*, as Mr. Crane puts it. I think there were three or four straw hives near a big patch of buckwheat. How it did us fellows good, after pondering for months over the tedious works of Francis Bacon, Thomas Aquinas, and others, to get a lesson of more practical and more wholesome philosophy from a hive! I guess some of us preferred the merry hum of the bees to the clumsy mediæval Latin, which was the only language we were allowed to speak then.

The great trouble in bee-keeping here is the insatiable stealing propensity of the nigger. He will take any thing and every thing loose about an apiary, such as covers, bottom-boards, stands, etc. There is nothing the West Indian nigger won't take, from an old horse-brush to an old bottle of medicine. The hive alone he lets stand—on its own merits, I suppose. Bee-stings are evidently not much to his taste. It is even trouble to get help at extracting time, especially when one keeps hybrids as I do. The screaming and wailing that fills the air round an apiary on extracting days is enough to remind one of a Russo-Japanese battlefield.

Our average yield here is about 120 lbs. per colony. Our honey sells from 20 to 28 shillings per 112 lbs. This would correspond to about 5 to 7 cents per lb. in American money.

Castries, St. Lucia, West Indies. May 10.



THE VALUE OF A PROTECTED LOCATION;
PROVIDING FOOD AND WATER FOR
BEES IN THE CELLAR.

Regarding this important matter of wintering bees, Mr. Alexander says, on page 28, that, when father Quinby used to meet with them, the question of using well-packed hives in cold cellars was discussed. Well, this reminds me of what I did. In three of my yards I placed large clamps, holding eight hives, in the cellars, packed around the sides and on top, the same as those left outside. The results were rather disappointing. They were all large, airy, light cellars; but I hung cloths in front of the flight-holes, facing the light.

In the cellar at the Noble yard, five out of eight died on the average, as also those outside. In the Mitchell yard, four out of eight died, both inside and out; but in the Glemy yard none died, either inside or out. This cellar was damper than the other two, and had an open wooden cistern in one end. Furthermore, in this yard the bees were under a rise of ground to the northwest, and the house sheltered them in that direction also. In this yard the bees had been rapidly increasing, while those of the two other yards had been dwindling. The colonies in these two yards first mentioned were much exposed, the clamps being either completely buried with snow, and strong colonies overheated, or else all the snow was blown away and biting winds whistled round the bleak hives from day to day.

The first year I kept bees I found water recommended by Langstroth, so I placed shallow pans of both honey and water on top of some hives in the cellar, and the bees would come up and eat the honey, but leave the water entirely alone. If Mr. Alexander had only happened to read this, and try it, likely he would have been amazed at the avidity with which the bees would have devoured it.

R. F. WHITESIDE.

Little Britain, Ont., Can., Jan. 12, 1907.

TERRIBLE EFFECT OF MOTHS ON FINISHED
COMB HONEY.

I had a good many sections of the handsomest honey I harvested utterly ruined, soon after taking from the hives, by moth-worms. I've had some trouble of this kind for eight years, since living here, but never any thing like this. When I found out it was so serious I stood my sections an inch apart on shelves in a warm room. While this stopped the matting of sections together with webs, it made no other difference. The worms were persistent, and the sections dusted over

with fine stuff like yellow flour or sawdust. Before all this, and at once upon taking from the hives, I packed this honey in honey-crates, and immediately wrapped the whole case tight in newspaper and tied each one securely. Imagine my disappointment, when I untied this for sale, to find it devastated by the moth-worms! I can find little that is very definite in the A B C book, nor a picture of any convenient device for brimstoning the sections, if, as it is intimated, some believe the worms may be exterminated by that means.

I think most apiarists presume that the eggs of these worms are laid by moth-millers flying after the honey is brought into the honey-room or a honey-house. But no miller could get into my cases after such secure wrapping. This looks as if the eggs were on the combs before the sections were removed from the colonies. If you have a cut of some contrivance for effectually disinfecting crates of completed sections, can you not show it in GLEANINGS for the sake of those who have this special plague to deal with?

T. CHALMERS POTTER.
Glasgow, Del., Jan. 10.

[The honey should have been fumigated after taking it off the hive, as directed in the A B C book, either with bisulphide of carbon or sulphur, as directed in said book. No special apparatus is needed except a little room, tight box, or a set of supers containing the sections piled one on top of the other. If the bisulphide is used, a dish of the liquid should be set on top in an empty super, with the cover on, and the evaporating fumes allowed to settle down through the sections. This should have been done in the first place. This is where you made your mistake.—ED.]

A RECORD IN TAKING OFF HONEY; SPACED
FRAMES ALL RIGHT FOR A TEXAS
EXTRACTING-YARD.

We harvested a good crop this year, and I made a record in taking off extracted honey. I should like to see this surpassed by some of the plain-frame men. In ten hours two boys and myself took off extracted honey, put all the combs back, and cased 350 gallons of honey. I took off every comb and wheeled them to the tent in a wheelbarrow, four ten-frame bodies at a time. That talk about its being so hard to get self-spaced combs out of hives is all nonsense. The day before we made this record we took our outfit 14 miles, and put the tent and every thing in working order, and extracted 300 gallons. But we had to get up at 2 A.M.; but that shows what can be done if one gets in a rush.

A. H. KNOLLE.
Hondo, Texas, July 24.

TWO LAYING QUEENS IN ONE HIVE.

To get strong colonies for the first of March I have kept two queens in a hive, using an excluder between the supers of the smaller hives, or a division-board excluder in the

middle of the large twelve-frame colonies. In each case I get a much stronger colony than the ones with the single queen, brood-frames to be packed in every cell; but, unfortunately, in this locality, the method does not completely control swarming. I am anxious to hear Mr. Alexander's account of keeping two or more laying queens at large in one hive; and if he is successful at all times of the season, without cutting their stings, he has succeeded in an experiment where I utterly failed.

Sierra Madre, Cal. HAROLD DAVENES.

DO BEES "STING" UNRIPE PEACHES SO AS TO MAKE THEM RÖT, ETC.?

Mr. Root:—I write to call your attention to a question asked of the editor of the *Country Gentleman*, in its issue of Sept. 19. This question is asked by Amateur, how to protect his peaches "from bees and other pernicious insects." Amateur, of course, can be excused for his ignorance in regard to honey-bees; but a paper so old and popular, and edited by such highly efficient and widely known authority on agriculture, should certainly be called to time for their weak and ignorant answer to their subscribers.

T. J. CROSS.

Campbell Hill, Ill.

[Below we give the entire query and reply taken from the *Country Gentleman*:]

How can I protect my peaches, which I am fast losing, from bees and such-like pernicious insects? The peaches are stung while unripe, and directly begin to rot. AMATEUR, Detroit, Mich. [Perhaps the best way to preserve peaches will be found in picking them before they are ripe enough to be molested. They will ripen, even if picked rather green. Otherwise the only sure preventive would be found in covering the trees with netting. The expense of this method would render it unadvisable except with very choice fruit. A mixture of honey and sugar or glucose might be tried to see if the bees and wasps would take it instead of attacking the fruit. Is the writer positive that the bees attack sound fruit? It is possible that the birds break the skin, and that the insects then feed on the sweets exuding from the wounds. We should be glad to hear the results of observations to determine this point from any one troubled in this manner.—ED.]

[My good friend, are you not a little severe on the *Country Gentleman*? The main blunder is in failing to assure Amateur and others that he is entirely mistaken in thinking that bees sting peaches while green, or ripe either, for that matter. I judge from some experience of my own, that, in their answer, they failed by omission to touch on this point. Amateur's mistake is right along in line with that of many other people who know nothing about bees. They seem to think that bees have no mission in this world but to sting and destroy, whereas the sting is never used except to protect themselves and their stores from enemies. The *Country Gentleman* should remember the famous Utter lawsuit about bees and peaches that occurred in their locality. This man Utter would have it that the bees not only made the peaches rot, but killed the trees outright by the poison of their sting. I can not think that it is ever necessary to use netting, as suggested, to keep away the bees. If all the overripe

and rotting peaches are taken from the trees, as they should be, there will be nothing in the peach-orchard to attract the bees, and that is the proper way to handle the fruit crop, even if no bees or other insects were anywhere about.

Our stenographer suggests that the man who writes to the *Country Gentleman* had somehow got it into his head that bees sting fruit something in the way the curculio "stings" plums, cherries, and even apples. Now this latter insect does the stinging in order to deposit the egg that produces the worm in the fruit. The writer fails to recognize the fact that bees do not lay eggs in unripe fruit, and that they are an insect of an entirely different order, etc.—A. I. R.]

BOX-ELDER AS A HONEY-PLANT.

The box-elder has given the bees a treat in its time. It is earlier than other maples. One near the door was fairly alive with bees merrily humming.

NELLIE M. REEK.

Neenah, Wis.

IN THE A. I. ROOT CO.'S APIARY.

BY JOHN THURMAN GRAVES.

I love to while an hour away
Among the vines and trees,
Where healthful breezes freely play,
And watch the honey-bees.

They seem too busy with their work
To even think of fun,
And they can start an idle shirk
Into a lively run.

All day the little fellows toil,
Regardless of the hours,
And ask no owners of the soil
About the fragrant flowers.

O'er boundary lines they boldly pass—
No ownership they know;
All blossoms are in one free class,
To which they quickly go.

No deed nor mortgage they require,
No contract, weak or strong,
But, straight away, each busy flyer
Goes, humming a sweet song.

They know no difference in the taste
Of flowers that gently wave
On well-kept lawns or weedy waste
Or decorated grave.

We see them in the shady woods,
We meet them in each field,
And in the stores, where sugared goods
An easy harvest yield.

They gather up the wealth of one
Hard-working human brother,
And, e'er you know what they have done,
They've given it to another.

They seem to hum a warning call,
And do such curious things
That I admire them, love them all—
Well, all—except their stings.

But we shall have to let those pass,
As we do "tainted money,"
And wish that people, as a class,
Were like pure clover honey.

All well ones, then, would work and live
Without a fear or sorrow,
And save to-day, and freely give
To needy ones to-morrow.

Medina, O., May 1.



OUR HOMES

by A. I. ROOT

All things work together for good to them that love God.—ROM. 8:28.

In meeting the readers of GLEANINGS as I travel about the country I frequently find people who say, "Mr. Root, your little prayer, 'Lord, help,' has been my prayer for many years past," etc. Well, I told you some little time ago that I had at times changed that prayer, especially when I felt discouraged, to "Lord, help me up and let me stand." You remember the hymn that I learned at that Bingham Sunday-school. Well, just recently an unusual number of cares and perplexities have assailed me, and so many distressing events—that is, from our point of view—that I have gotten hold of another prayer. It is this: "Lord, help us to learn the lesson thou art striving to teach us." This comes in line with our text at the head of this talk, and with many other of God's most gracious promises. I have been referring to this idea several times of late, particularly when I mentioned our difficulties in finding hired girls, especially those who love babies and like to work in a home where there are babies and small children. I told you this difficulty with all other seeming difficulties was simply God's effort to teach us lessons we ought to learn, and that we need not be discouraged or disheartened, nor feel like giving up if we will just keep it in mind, or, better still, keep it right before our eyes, that these perplexities are simply reminders that we are at least in some way in the wrong, and that God is troubling us, even as he troubled the children of Israel in order that they might stop and consider the error of their ways and turn about and get into the straight and narrow path where God would have them (or us, if you choose) tread. Now let me tell you how my little prayer worked during one short week.

Mrs. Root and I had been talking all summer about a trip to the cabin in the woods; but we both were needed so much here at home that it was put off till peaches began to get ripe. We have a little peach-orchard in our northern home; and they have great crops of apples, peaches, and other kinds of fruit in the region around Grand Traverse Bay, Mich. We were waiting the time when they should be ripe, and finally received from a neighbor the following:

Mr. Root:—Your yellow peaches will be ripe next week. Can you and Mrs. Root come out? or what shall I do with them? Shall I can some for you?

MRS. ANNA HEIMFORTH.

Bingham, Mich., Sept. 7.

Accordingly our plans were made, our grip-cases were packed, and we were within two hours of train time when Helen Maude's mother had a sudden attack which the doc-

tor said might result in pneumonia, and he advised us to postpone our trip for at least 24 hours; but as my arrangements were all made, and I knew those peaches had to be cared for, I decided to go on without Mrs. Root. After the doctor made his statement Mrs. Root said, "Well, what shall we do now?" I decided it would be best for Mrs. Root to remain with the week-old baby and the sick mother.

At Toledo I found that I could get a fifteen-day excursion ticket to Traverse City and return for only \$7.65. Before taking the ticket, however, I told the agent I must visit Manistee as well as Traverse City; that I was well aware that that low-priced ticket would take me to either of the above places and return; but could it be so arranged that this one ticket would enable me to visit *both* places and return? After examining the folders and rules and regulations he said I could get off at Baldwin Junction, and go over to Manistee and come back to Baldwin, providing I was gone only one day. He thought that possibly I might be away for two days. He said I could get over there one day, *sure*, if that would answer my purpose. I replied, "I think I can make one day do very well, and will, therefore, take a ticket providing the railway company will permit this and no mistake." He said there could be no possible mistake if I stopped off at Baldwin, because that was the junction where I would have to change cars any way, so I took the cheap ticket. When I arrived at Traverse City I showed my ticket to the agent there, and told him under what condition I had purchased it. To my surprise he said I could do no such thing. He replied, "I do not care what the ticket agent at Toledo or anybody else told you. The ticket in your hand reads plainly, 'no stop over,' etc."

All the difference it made to me was that I should be about five dollars out of pocket, besides the loss of a day's time. It compelled me to purchase a ticket from Traverse City to Manistee, and back again to Traverse City; but as there seemed to be nothing more to be said in the matter I let it drop, but made up my mind that the contradictory declarations of those two agents should be reported to headquarters. Let me digress a little right here, friends.

It is right and proper to complain of the railway companies or anybody else when they do not stick to an agreement; but at the same time it is not only unchristianlike but certainly it is unwise to be making a fuss continually about a few cents, or it may be even a few dollars. Our constant aim in these busy lives of ours should be to do right before God and before our fellow-men. We should strive to take such a course as will be most likely to win all mankind to Christ Jesus.

I went out and purchased supplies to sustain me in my lonely cabin home without Mrs. Root's presence and company. As I had but little idea how many peaches there would be, I purchased a few such crates as the express company advised, in order to

have the fruit sent by express to Medina. At that time peaches were selling at \$5.00 a bushel here at home, and not very good ones at that, while in Traverse City they were only \$1.50 to \$2.00.

It was raining when I left Medina, and it was still raining 24 hours later when I reached the cabin. Weeds and tall grass were all over the premises around the cabin door, etc.; and I felt lonely and homesick, especially as Mrs. Root was not along to give orders about tidying up and making the place look home-like. When my eye caught sight of the peach-trees, however, bending under their loads of blood-red peaches I said, "But won't I have fun now in gathering this fruit and putting it in those neat little six-basket packages to be expressed back home to the children and grandchildren!"

Even though it was raining I pushed out through the wet grass, selected a peach that looked just right, and took a bite of it. To my great surprise, however, the beauty was all on the outside. While it was as yellow as gold under the blood-red skin, it was insipid and tasteless. That branch, however, was partly broken under the weight of fruit, and I decided that that fact accounted for its lack of flavor. But to my great disappointment I found they were all alike. There were seven trees bending with this beautiful fruit, but not a peach that was worth shipping home. I felt more homesick and discouraged than ever. My little prayer came quickly to my aid—"Lord, help me to learn the lesson thou art striving to teach me." No blame at all could attach to Mrs. Heimforth; for, when she wrote me, the peaches were nicely colored up but had not begun to get soft. She said *she* was greatly disappointed when they came to taste the first ones that ripened. As nearly as I can make out from my record these seven trees were of the variety named "Switzerland," and most of the fruit began rotting as soon as it was soft enough to eat. A good deal of the fruit began to rot, even before it was really ripe. I think it was this rot that spoiled the flavor. Another thing, they had been having a long drizzling rain for many days, with little or no sunshine. This contributed, no doubt, to the development of rot. But the principal fault, probably, was the variety, for the few trees of other varieties that first began to ripen were as sweet and well-flavored as any peaches I ever tasted.

It was still raining that Wednesday night as I sat by the fire in my lonely cabin. It was prayer-meeting night at the little church over among the hills, and I had looked forward to meeting the dear friends there; but Orville Heimforth, who stopped in, felt so sure there would be no meeting on account of the severe rain that I did not go over to the church. In fact, I felt too tired to go anywhere. But if there *was* a meeting that night I shall feel guilty to think I did not make a harder effort to get there.

After figuring out that it would be some time before any more peaches would be ripe, and as there were particular reasons why I

ought to be at home before Sunday, I decided next morning on a hurried trip back home. In order to catch the morning train for Manistee I was up before daylight, and worked hard on the place until an hour before train time. Then I carried my heavy suit-case something over a mile through the woods, down into the valleys, and over the hills toward the depot. All at once I pushed my hand in my side coat pocket where I always carry my ticket. I stopped in the middle of the road in dismay. My ticket was not there! It was not in any of my pockets. I opened my suit-case, unfolded my overcoat, felt in all the pockets, but no ticket. While I was busy I had hardly noticed a big stalwart man who came across the fields. He leaned on the fence, with a comical look on his face, and said:

"Mr. Root, it appears to me I read in some magazine a while ago about a man who told how many pockets he had. He said he had a pocket for each particular thing; that he had one particular pocket where he always put his railroad ticket when traveling. He never put any thing else in that pocket, and he never put his ticket in any other pocket. The result was he was never obliged to stand confused before the conductor while he felt first in one pocket and then in another and then not find it."

"My good friend, what paper was it in which you read that account?"

"Well, I do not remember now what magazine it was. It was pretty well gotten up, and I did not know but you might have noticed it, and *may be* you are the fellow himself."

Time was passing, and the train would soon be coming. I felt too much vexed to be civil to the man who so kindly put a big joke on my poor self. I had, however, good sense enough to stop then in the middle of the road and say mentally, "Lord, help me to learn the lesson thou art striving to teach me."

The minute that prayer was breathed, the answer came. I went over and shook hands with Mr. Miller, who had brought the answer, and thanked him for having given me a just rebuke. I said, "My good friend, you have solved the problem for me. When I was doing the rough work around the cabin this morning I put on another coat. While at work something came up, and I wanted to see my ticket. I went over to the window where my best coat hung on a nail and took the ticket out of the ticket-pocket. Before I put it back in its place I crossed the room to my secretary and then stupidly shoved it into the ticket-pocket in my old coat. Just before I started for the train I took off my old coat and put on my best one. So you see I *did* put my ticket in the proper pocket just as I said in that article about pockets. And now if you will excuse me I will see if I can not get back over to the cabin and still not miss my train."

Notwithstanding my prayer that should have quieted my excitement and disappointment at my blunder, I was stirred up. I got

back to the cabin in twenty minutes; but I hurried so that I was sweating profusely. On the back track I had to face a strong northwest wind from off Lake Michigan. I was pretty sure I should catch cold, and would have given a dollar for my overcoat that was over there in my suit-case. I still thought I might catch the train, and may be I could prevent catching cold by walking fast. It did not work. I did take cold, and it lasted me more or less for two weeks. I suppose friend Terry would say that, if I had been sticking to the uncooked food, even such an exposure would not have harmed me. I hope he is right, but I do not feel sure. When I heard the train whistle when I was yet a long distance away I gave up and took things easy. I said once more, "Lord, help me to learn the lesson," etc. I was tired enough, and ready to pay somebody well to give me a ride. A man came down along the hill behind me. His wagon was loaded with fruit. A basket full of plums was on the seat beside him. I told him I would pay him well if he could make arrangements to take me to Traverse City. Although it made him some trouble he set the plums on top of his load and gave me a seat. I was tempted again, as I often am, to keep still once in my life and not talk. But I could not help admiring his beautiful fruit and asking some questions. He said he had never practiced spraying at all. His remedy was to pick up every apple, peach, or plum as soon as it dropped, and feed it to the pigs or destroy it so no insect would hatch out. He said he thought it was almost as good as spraying, and for him it was less trouble; and his beautiful fruit was in evidence as to the wisdom of his plan. He asked me if I was buying fruit, etc. I finally told him who I was. His face brightened up immediately. He said he heard me talk two or three years ago at a Sunday-school convention. My subject was "Path-making." He said he would always remember it.

Said I, "My good friend, do you go to Sunday-school as well as to Sunday-school conventions?"

He said he did, regularly.

"And you go to church also, and I presume you are a member of that church in that beautiful Keswick meeting-house." (Keswick is four miles north of Bingham, and the same minister preaches in both places.) I shall long remember the way his face lighted up as he replied. He really seemed glad to find somebody who was interested in the *welfare of his soul* as well as in the success of his plan of growing fruit. He said that, while he was not a member of the Keswick church, there was no reason that he knew of why he should not be.

Now, dear friends, do you not see how God was leading me by disappointment and perplexities, if I would but put my whole trust in him and stand before him a ready pupil? I could not help thinking of Philip and the man riding in a chariot. See latter part of 8th chapter of Acts.

When I knelt with my wife I asked God to

show us the lesson he was striving to teach us, the answer seemed to come at once that I was to go alone. Mrs. Root was greatly needed to look after Blue Eyes, first and second edition. But she was *not* particularly needed in Michigan, for the peaches that were ripening were not good. When I asked again for guidance the answer came promptly that God needed me elsewhere. When I stupidly lost my ticket, and was vexed by my blunder, he wanted me to ride with this young friend with his load of fruit, and give him counsel and encouragement (that, may be, the pastor of that church or the deacons had failed to give), I was cross about it. When that particular pastor sees this journal it may remind him.

Well, that is not all. I laid my plans that morning so as not to return to Traverse City before going to Manistee. As it was, I got into Traverse City unexpectedly. When I came to the ticket-office the agent recognized me and said, "Oh! I have investigated in regard to getting off at Baldwin Junction and going over to Manistee. While your ticket demands that you take the first train from any junction without any stop-over, you can, while you are at the junction, choose your route home. If you decide you want to go back by way of Saginaw to Toledo you will have to wait for the evening train, and this will give you time to go over to Manistee and stay from noon till night and still catch the Saginaw train. This is what our agent in Toledo had in mind; but he was in error in telling you that you could stop over one day, and in not explaining to you exactly how you could comply with all the conditions of the ticket and yet make a visit of five or six hours at Manistee."

Now, this information was, under the circumstances, worth a good deal to me. I had been cherishing an unkind and unchristian spirit toward railway companies, and especially toward that ticket agent at Toledo. I had been taught a valuable lesson in the way of charity, even for great railroad companies, and I got a further valuable lesson. I replied to this Traverse City ticket agent, and he certainly is a very fine and gentlemanly fellow, even if I did think on my first trip that he was needlessly severe. I said, "My good friend, your people ought to know me. I have traveled over your road for many years, and you ought to know that I do not want any crookedness in the way of giving me any favors. I do not ask for any privileges that are not granted to everybody else who travels, even though I have done your road favors in times past, and you have kindly accommodated me in many ways. I am very glad to know that the agent at Toledo was right, or partly so."

Then he replied:

"Mr. Root, we are so hedged in by the interstate-commerce laws that most people can not understand why we can not deviate just a little to accommodate. The fact is, we may get ourselves into serious trouble by deviating in even the smallest degree. I am glad you understand it and appreciate it."

Now, because we hear so much said about the needless severity of ticket agents and other railway officials should we not be a little careful? and should not all of us who love God, who love our fellow-man, who love a "square deal," as our good President has put it, thank God for the Interstate Commerce Commission—a commission that has done so much of late to give every man the same chance, whether he be rich or poor, millionaire or day laborer, so that now whoever travels on our great railroads will pay the same price as anybody else—no more, no less? And when it comes to shipping goods, may God be praised that there is a prospect just now that even the Standard Oil Co. with all its millions can not secure any favor that other people can not enjoy as well. When the small farmer or oil-producer has something to ship by rail he can compete now with the great syndicate, because the interstate-commerce law declares it must be so; and they are punishing severely those who think they can by trickery or cheat secure privileges that common people, even though they are young or inexperienced, do not enjoy. And there is a bright outlook before us—a glimpse of a nation that is governed by laws that are "of the people, *by* the people, and *for* the people."

Now, friends, is it not true that God is striving to teach us great and valuable lessons if we are only willing to be taught? And is it not true, also, that "all things shall work together for good to those who love God"?



"CIVILIZED OUT OF EXISTENCE."

Myself and a young companion were making a hurried trip on a train that stopped at a station only ten minutes for supper. It was after our supper time, and we were both hungry. I suggested to my young friend that it was not well to eat so hurriedly as to get through in ten minutes, and therefore we would each get a lunch in a paper bag and eat it at our leisure on the train. Without inquiring the price I called for a leg of fried chicken for each of us, and a sandwich and a piece of pie. I suggested to the boy that, if he cared for coffee, he would have time enough to drink that and take his lunch afterward. The waiter misunderstood, and brought two cups of coffee. I very seldom drink coffee; but I decided that, to save trouble, I would take the cup. Besides, I wanted to experiment a little as to the effect of a big strong cup of coffee. I cautioned my young friend when I found it was what the great traveling public would call "excellent coffee." It was very strong, with plenty of cream in it. At first I thought I would not drink it all, as it was so much

stronger than I was accustomed to; but afterward I decided I would, just to study the effect. More of this later.

I threw down a dollar, but found that was not enough. The leg of chicken was 30 cts.; sandwich, 10 cts.; pie, 10 cts.; coffee, 10 cts., making \$1.20 for both of us. (I wonder how much the poultry-keeper gets as his share of the 30 cents for a chicken leg.) Now, I am not grumbling and finding fault. It was a splendid lunch-room. I have visited it many times, and there are always great crowds patronizing the long tables. The food is all excellent in quality, smoking hot, and ready for you to grab at a moment's notice and jump on the train. Of course, you have to pay extra for such accommodation. It is just what the rushing people of this great country demand. It is one of the evidences of our wonderful "civilization" that you can get a good square meal so quickly, and push ahead on your journey. But I wish to make a little protest on two grounds. It is an extravagant way to live, and it is certainly injurious to the health. The greater part of the crowd ate their full meal, toward the close of the day, inside of ten minutes, and standing up. There is no time to chew the food. We are wondering what causes appendicitis, cancer, consumption, and a score of other ills. Eating in such haste, and eating so much, especially without chewing, is one of the troubles. I should greatly have preferred a cent's worth of rolled wheat, another cent's worth of butter, and a little fruit, and perhaps some nuts if you choose, all costing when *at home* not over five cents.* You may put in an egg and call it six cents instead of *sixty* as at the lunch-counter.

Some of you may think that I am in small business having so much to say about economy in our food. People who get fair wages, and especially those who have plenty of means, do not stop to count pennies or nickels; and sixty cents for a meal in traveling is not unusual or extravagant. But there are lots of people, as you may know to your sorrow, who do not pay their debts. There are people in every community who do not pay their grocery-bills, to say nothing of bills at the clothing-store and shoe-store. Some of them do not even pay their doctor's bills; but if you lived as Terry and I do the bills for food and the doctor's bills would not exist—at least they would cease to a considerable extent.

Now a word about the cup of strong coffee. The boy, sixteen years old, drank it right down. He said it was not a bit too strong for him—the stronger the better. I usually feel very sleepy between nine and ten

* By the way, it is my custom when traveling to have some sort of lunch always in my grip-case. I tell Mrs. Root to give me some rolled wheat, or zwieback, and a bit of cheese, and to be sure to have all of the lunch something that will not spoil if I have no occasion to use it. Of course, I want a little jar of butter to go with my rolled wheat; and sometimes I carry along a jar or tumbler of the delicious cheese that can now be found in first-class city groceries. Such a lunch keeps me in health very much better than patronizing lunch-counters such as I have described.

at night; but under the stimulus of that *good* coffee I felt very bright and wideawake until after twelve that night. I had some disturbing experiences that kept me awake, but I should have been very faint if it had not been for the unusual stimulus of that coffee. Some of you may say, "Why, Mr. Root, you have just given us a most excellent testimonial to the effect that coffee is a gift of God for those who are obliged to be up while traveling on important business, etc." I do not agree with you. If I had the same experience to go through again I would go without the coffee. Remember what the Wright Brothers said about abstaining entirely from coffee on the day they were going to make a test of their flying-machine. I do not want nature lulled to sleep or unduly whipped up to greater exertion by means of whisky, morphine, headache-powders, nor even coffee. When the time comes for nature to demand sleep I want to respond to it.

Next day I passed the same lunch-counter in going back home, and the train stopped just ten minutes a little after the noon hour. I took a little more time and found two boiled eggs in a little dish with the shells removed. To my surprise these were only a nickel. A good-sized sandwich was a dime, and two apples a nickel, the whole dinner costing 20 cents instead of 60, and it was all the dinner I needed.

Before I left the train the car was crowded, and a bright looking man came and sat down by me. After a little talk he asked me how the Wright Brothers were progressing in France and Germany with their flying-machine. I could not answer him, and I can not answer you *just now* either. He was a construction engineer on a new trolley line that is running across our State. I told him I rejoiced to see what the electric lines were doing, and also to think I might live to see flying-machines outstrip every thing we have at present; but I told him I felt sad to see some things that the world calls civilization and progress. He asked me to explain. As he was soon to get off the train I told him I would be brief. I mentioned the lunch-counter business, and I said something like this:

"My friend, we *are* certainly making progress from one point of view. Everybody is busy, getting good pay, and has plenty of money to pay sixty cents for a ten-minutes meal when traveling. I am one of a family of seven children. My mother brought us all up, took care of us with the help of the older ones, gave us a fair education, and lived to be almost ninety years of age. She enjoyed life, and did not think she had a hard time. Now when a baby comes into a family a trained nurse must be kept for two or three weeks at three dollars a day, and you are lucky if you do not have to pay four. The hired girl must have her wages increased or else she will throw up her job. Another woman must be employed to do the washing, sometimes a fourth one to do the ironing. This is only a brief illustration of our magnificent civilization you have been

defending. Young married people are telling me on every hand they can not afford to have a baby in the home; and a good many bright young men say they can not afford to get married. If they have any children at all, one is about all they can take care of; and where there is only one child in a family the chances are very great that that child will be spoiled. Now, if no more babies are to be born, how long will it be before there will not be anybody to patronize the lunch-counters or to make trained nurses and all these other things? Don't you believe that you and I were lucky that we have had a 'chance to be born,' as Emerson T. Abbott expressed it a while ago?"

At this point my friend was near his destination; and as he got up he put out his hand and said he was glad of the privilege of having a talk with me, and said something like this:

"Mr. Root, to put it short you are afraid that, if the present stage of civilization keeps on, we may finally get to a point where we shall be 'civilized out of existence;' and to be frank about it I do not know but you are more than half right. Good by; and do not forget to tell us about the flying-machine."

Now, my good friends, whoever you are and wherever you are, don't you think our good President has called attention to one of the most important things to be considered by this present generation? He calls it "race suicide;" and my friend the bright educated engineer termed it "getting civilized out of existence." May God *help us* to learn the lessons he is trying to teach us.

PURE AIR FOR POULTRY AND FOR PEOPLE.

Our friends are well aware of how much I have had to say in regard to an abundant ventilation for sleeping-rooms, our homes, public buildings, and everywhere else where people congregate indoors. Well, the poultry-keepers of the whole world are just waking up to the fact, that poultry diseases are largely the result of poorly ventilated domicils. And now the cattle-raisers have got hold of it and are taking out their glass windows and putting in their place sashes covered with muslin or muslin curtains. See the following, which I clip from the *American Poultry Advocate*:

Such practical proof of the decided benefits of ventilating through muslin curtains in cold weather is most convincing. The gentle admission of the pure outdoor air seems to give exactly right conditions of passing out the vivified air and steadily passing in the pure air from outside, resulting in better health for the stock, and better health means greater profits. It is so simple a thing that it is almost humiliating to think we have been so long a time in working it out; but now that it has been worked out, and we are coming to realize how great a help it is to us, the right thing to do is to accept it with thankfulness, and help others to an equal share in the benefits. The adoption of the curtain-front for poultry houses has solved some of the perplexing difficulties which have confronted us. We gladly welcome its aid, and pass it along to our fellows.

There is just now so much being said in our agricultural papers about the curtain-front poultry-houses and curtain-front sta-

bles that I have begun to think that curtain-front bedrooms for extremely cold weather would soon be coming. When zero weather with fierce storms comes, it is rather tough on most elderly people to have the windows open very much. Now, why not take out the sash and put in a frame of sash covered with cloth? A thing that has proved to be of such wonderful benefit to chickens and cattle must be good for human beings also. Sleeping in a tent, that has been quite the fashion during the past summer, is along in the same line; and, by the way, a young man who is in the Y. M. C. A. work here has had a tent sleeping-room in our orchard for several weeks the past summer. It is not only occupied by himself and wife, but in very warm weather some of the nearby neighbors have accepted their invitation and slept in the same spacious tent in place of a hot and comparatively poorly ventilated bedroom indoors. Down in Florida you can live in a tent quite comfortably winter and summer if you choose.

Here is something more from friend T. B. Terry, which I clip from the *Practical Farmer*:

You will not be able to get one of our greatest physicians now to say that any thing is incurable. There have been too many times when doctors have so concluded, only to have the patient get well in spite of them. For example, there is a case on record where the doctor gave up a pneumonia patient — said it was no use for him to come any more; nothing could be done; the man would die. The patient then said to his wife, "I must die any way. Open the door and windows, and at least let me die in fresh air." She did so, and he got well. I have used this illustration for a purpose. Nature could not save that man without fresh air. With it she was able to and did. Similar results can be given in almost any line of disease.

May God be praised that we are finally having a crusade that promises to be worldwide for fresh air, and plenty of it, for all animated creation.

PURE AIR AND TEMPERATE LIVING — THE IMPORTANCE OF THEM AWAY OVER IN TASMANIA.

Somewhere, years ago, I read in your notes about the value of God's pure air. It is about this that I wish to write in particular. Since that I have proven to my entire satisfaction that you were *absolutely correct*, and I should like to give you my experience.

Once I was as subject to colds as any one; but since I have slept with my bedroom windows open and the door wide open I have had only two colds in about ten years, and that was while away from home both times, when I slept in bedrooms that were not sufficiently ventilated.

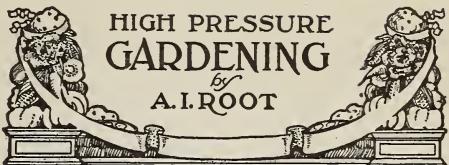
My mother is now nearly eighty years old, and has not had a cold for years. She, too, sleeps with her window open a little at the bottom, winter and summer.

I sleep with my window up four inches, and lie so the wind can blow over my face, and that in the winter. Be temperate in all things, and get all the fresh air you can, and you need never fear colds. Overeating and badly ventilated rooms are two things to avoid if you would be healthy.

One has only to look around here in this island state, which is a very healthy one, and we see people with colds which hang on them for weeks, and they wonder why. We do not wonder, because we have the light.

Yes, dear friend, hammer away on those lines, for you are on the right track. I thank God it has been my privilege to become a subscriber to *GLEANINGS*, and thus enjoy the benefits of its teachings.

Ramsgate, Tasmania. Aug. 11. G. H. SMITH.



SWEET CLOVER—IS IT A NOXIOUS WEED?

A. I. Root:—I enjoy reading your notes in *GLEANINGS*, Our Homes, travel, camping, health notes, poultry, gardening, temperance, right living, bee-keeping, and the whole outfit, until you begin to sing the praises of sweet clover. Then I get very tired, as I have many a time in trying to destroy the pest, as a pest it is for us. It gets in waste places, along roads, in water-courses. I would just about as soon have rattlesnakes or Satan. Talk about its winter-killing! You must have different winters from ours, and we have some hard winters here. If I had to choose between bees and sweet clover I would cut out the bees and then kill the sweet clover—if I can. About the only way to exterminate the stuff is to pull it and keep at it, and that is some work. I am getting too old. Now, likely you catch on to what I think of sweet clover. Yours for the good things of life, but down with the mean things. W. F. DELINE.

Cannon Falls, Minn., Sept. 9.

Why, friend D., I am surprised at you, especially if you have been reading what we have had to say about sweet clover. Do you consider and take notice that sweet clover is a legume—that it is a clover, and, as our experiment station puts it, none of the clovers can be consistently called noxious weeds? Yes, it does grow in waste places and along the roadsides, for it is the most hardy clover known; but if the ground is leveled off, and it is cut down and given to stock—that is, if it is cut down often enough, it makes about as handsome a roadside as any thing I can think of. If it comes on to your fenced fields, turn in the horses and cattle, pigs and sheep. Haven't you seen in our past numbers abundant evidence that all kinds of farm stock can be taught to eat it with great avidity? Besides its value for stock, it has been recently demonstrated that it is probably the most valuable plant known to turn under for enriching the soil. It is the very easiest and readiest means of inoculating soil with the nitrogen nodules; and the very best and quickest way to fit a piece of ground for alfalfa is first to get it to growing sweet clover.

I thank you for your kind words in closing; but I wish you would write us again and tell us frankly just why you do not utilize the sweet clover, that grows so rank and strong, for feeding stock or for fitting your ground for tremendous crops of any thing you wish to grow. We are glad to know you have talked out thus plainly, because we want to know every good reason against the general dissemination of this exceedingly valuable legume. See the following:

MORE ABOUT SWEET CLOVER; ITS VALUE TO FARMERS, ETC.

About 20 years ago I became interested in bees through an advertisement of A. I. Root in the *Farmer Journal*. I got the A B C of Bee Culture, and that is the first I knew of sweet clover. I found at that time in an orchard on our own farm, about 80 rods from

home, a nice patch, probably planted there by an old settler. I now live just across the road from that orchard, and that patch is there yet. The land is farmed all around that orchard, but not a plant of that sweet clover can I find in the field ten steps away, without any pains whatever to eradicate it except to till the land as usual.

A few years ago many of my neighbors were afraid of it, but now they know better. One of them asked me if I could sell him half a bushel of the seed last fall, as he wished to seed a little patch of bottom ground where the river had washed away the soil. Several of my neighbors have begun to sow sweet clover on low ground where the river washes badly. About two miles from here there is lots of sweet clover along the roadside. Near that place are 12 acres of bottom land that was made almost worthless by high water sweeping the soil off. An enterprising young farmer bought this land at about half price, he having noticed that the rains had washed the sweet-clover seed from along the road above down across this field, and it had become thickly set to sweet clover. This field had lain idle for one year then; and as the high water came down again the next spring this sweet clover caught lots of the sediment, and sweet clover and all was plowed under. That land is now good for 60 to 75 bushels of corn every favorable year. That one transaction did more to gain friends for sweet clover than ever so many arguments.

About eight years ago I lived in Henry Co., Ill., and I cut and put up a small stack of first year's growth of sweet clover, and in the winter the cows seemed to relish it as well as red clover, and much better than timothy.

This spring I tried a little experiment. I had dug a well 57 feet deep. The last dirt was dumped in one pile. This was blue clay and soapstone. I then went and dug up a plant of sweet clover and transplanted on this pile. That plant grew as thrifty as any, and blossomed, and bore an abundance of seed. Bees were seen on the blossoms for several weeks. This proves that sweet clover is one of the most wonderful nitrogen-gathering plants in existence. I should like to ask if sand vetch will grow on such soil. Some time ago I saw an account where a jar of soil was analyzed, and then a soy bean planted in it. After the bean had made its growth it was removed, and the soil was again analyzed, and the jar of soil found to contain more nitrogen than before the bean had grown in it; so the soy bean not only got all its nitrogen from the air, but even stored some from the air into the soil. The soy bean is considered a good nitrogen-gatherer, but I doubt whether it would grow well on soil taken 50 feet below the surface. Of course, sweet clover must have also potash and phosphorus, but I think my experience shows that these elements are at a considerable depth in the earth. The sweet clover would not only gather nitrogen from the air and store it in the soil, but it would, with its long roots, gather the other elements from quite a depth and bring them near the surface. Many worthless farms could be made very valuable with this sweet clover, as no high hill or poor steep side-hill is too poor for sweet clover to grow on.

The wheels, etc., that move the seed from place to place along a public highway also move the nitrogen-gathering germs there, for it grows so well along the highway, even in barren clay banks.

Much has been said discouraging the planting of any thing for honey alone; but when we plant sweet clover on poor soil the enriching of that soil is well worth the trouble and expense, saying nothing about honey. The value of sweet clover is just beginning to be known. It deserves much more credit than it has ever received from either the farmer or bee-keeper.

J. E. JOHNSON.

Williamsfield, Ill.

CHESTNUT, PECAN, AND OTHER NUT-TREES.

I am a reader of GLEANINGS, and do not miss much appearing from your pen. A short time ago you mentioned having a chestnut-tree that was failing to fruit after blossoming, and that the experiment station thought it might be because no chestnut-tree stood near it to pollinate its flowers. I believe this is an error. All nut-trees I have ever known were self-fertile. I have on my grounds a pecan-tree, the result of a nut planted 15 years ago, and which is now nearly if not quite 50 feet high, and which has been bearing since it was 8 years old. The first year it had male flowers (catkins); it bore nuts, but I could not find any female flowers, and did not until the next year. Have you ever examined a nut-tree when in

blossom, looking for the female flowers? They are very inconspicuous, and could be easily overlooked even by the careful observer. On the other hand, the male flowers are very conspicuous, and appear always, I believe, on the last year's or earlier growth, while the female or fruiting flowers always appear on the tip of the present year's growth, and are little more than minute waxy nuts. My pecan-tree has excited considerable interest, as it was not generally known that it was hardy in Ohio. So far as I could see, not bud was injured, even during the winter of 1899, when the thermometer registered more than 30 below zero, and the tree bears every year, not as the hickory, on alternate years only. The nut is as sweet as any I ever tasted, and quite free from the usual peanut flavor so common with the natural pecan. The nut I planted was sent to me by Judge Miller, of Missouri, a well-known writer on horticultural subjects, and he said it was from a tree which bore nuts of unusually large size and good quality. I also have growing on my place Persian or English walnuts, one of Burbank's hybrid walnuts, and a tree that would seem to be a hybrid between the Persian walnut and the butternut, but none of these have yet fruited.

The pecans are wholly free from worms, I never having seen one nut in the seven years the tree has fruited that had a worm or a wormhole in it. Hickory-nuts here are very wormy, nuts from some trees bearing more than half wormy, while none are free.

Sidney, O., Feb. 14.

E. P. ROBINSON.

Many thanks for the information you give us, friend R. You are doubtless right, and I will keep a more careful watch on our chestnut-tree. When I am again in your vicinity I promise myself the pleasure of seeing a bearing pecan-tree in Ohio.

Temperance.

GOOD FOR THE METHODIST CHURCH—AN ADVANCED MOVEMENT.

We clip the following from the *Cleveland Leader*, dated Columbus, Ind., Sept. 27:

Charles W. Fairbanks, Vice-president of the United States was defeated to-day for delegate to the quadrennial conference of the Methodist Church after one of the most bitter contests that was ever waged in a religious assembly.

The temperance laymen, many of them long associated with Mr. Fairbanks in the church, refused to condone what they regarded as an offense against temperance. The distinguished candidate went down because of having served cocktails and three kinds of wine at the dinner given to President Roosevelt on Memorial day at the Fairbanks home.

May the Lord be praised that we have at least one church that is not afraid to "call down" even the Vice-president of the United States when he so far forgets himself or fails to "sit up and take notice" of what the good men and women of all churches in this land of ours are now demanding along the lines of temperance reform.

Later.—We clip the following from the *Woman's National Daily*:

Of deep political significance is the defeat of Vice-president Fairbanks for delegate to the Methodist conference. It probably means that whatever small chance he may have had for the presidential nomination has been destroyed. The Republicans are not going to have any cocktail issue in the next campaign. They are not going to offend the temperance people, because the temperance vote may mean very much in the next contest. It is extremely significant that a man like Fairbanks is turned down simply because he had cocktails and wines on his table at dinner to the President. It shows that the prohibition advocates are growing stronger and stronger in the country, and must be reckoned as a factor in political contests of the future.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CARM, Pekin, Ind.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for \$1.00; an extra select breeder for \$2.50. I have had 12 years' experience at queen-breeding. Address

SAMUEL M. ANGEL, Route 1, Evansville, Ind.

JOSEPH HORNE COMPANY, PITTSBURG, PA.

Rhadame Tussah Silk, 40c Yd.

A washable fabric, a mixture of silk and cotton.

For afternoon dresses and evening costumes, for party dresses, it has no rival among inexpensive fabrics.

It is 27 inches wide and the patterns are neat little jacquard designs.

The regular price of this material is 65c.

We bought 22,500 yards, and the weaver will not make any more unless the retail price advances over 65c.

Colors are champagne, light blue, pink, nile, golden brown. There is also black.

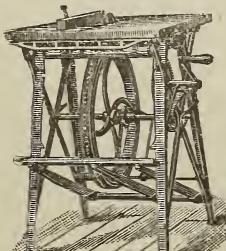
We'll mail samples with pleasure, but if we were in your place we'd send right away for a dress pattern of this choice inexpensive material.

BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

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W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.



Convention Notices.

The fall meeting of the Middlesex Bee-keepers' Association will be held in the City Hall, London, Ont., on Saturday, Nov. 2, morning and afternoon sessions. An interesting time is expected.

E. T. BRAINARD, Sec.

I write to say that arrangements have been made for holding the annual convention of the National Bee-keepers' Association in the audience-room in the State Department of Public Instruction in the new State capitol building, at Harrisburg, Pa., October 30 and 31. There will be a room for exhibition purposes, and an audience-room adjoining. If the exhibitors desire they may ship their material in my care. The headquarters will be the United States Hotel on Market St., which will give special rates of \$1.25 and \$1.50 per day.

H. A. SURFACE,
Economic Zoologist.

Oct. 11.

The fourth annual meeting of the Pennsylvania State Bee-keepers' Association will be held at Harrisburg, Oct. 29, the day before the National, in the capitol building. The first session will convene at 1 P.M., and be devoted to business. In the evening there will be an informal meeting without any fixed program.

The National and the United States Hotels and the Hershey House have offered to accommodate those attending the convention for \$1.50 cents per day. The Y. W. C. A. will entertain the ladies for 75 cents per day. Owing to the unsettled rate conditions no reduction in railroad fare will be granted to us this year. A cordial invitation is extended to all who are interested in bees. There will be exhibits of honey, and all are invited to contribute to them.

FRANKLIN G. FOX, Sec.
205 Ninth St., S. W., Washington, D. C.

ANOTHER BEE-KEEPERS' ASSOCIATION ORGANIZED.

On Friday, Sept. 13, 1907, in the booth of the apiarian display of H. S. Duby, at the fairground of Kankakee Co., met several bee-men and organized the Eastern Illinois and Western Indiana Bee-keepers' Association, to hold a two-days convention in Kankakee some time in December. J. Roberts, of Watseka, was elected president, and Ray Ensinger, of Kankakee, secretary. Members of the Kankakee Business Men's Commercial Club tendered the use of their fine hall free of charge. The members of the committee expect to make this convention equal to the Northwestern in attendance and importance. Reduced rates will be secured at hotels, and a committee on reception will be appointed. Parties desiring information should write to either of the officers named, or to the undersigned.

H. S. DUBY, St. Anne, Ill.

IT IS JUST OUT

Root's ABC in German

We have just been informed by our printers that the work of printing the ABC of Bee Culture in German has been finished, and that in a few days 1000 copies will be in our hands for distribution. The price is \$2 postpaid. Send in your order now if you wish a copy hot from the press.

A. I. Root Co., Medina, O.

AND ALL AGENCIES

CUTS USED IN THIS MAGAZINE
ARE FROM
THE MUGLER ENGRAVING CO.
MUGLER BLDG., CLEVELAND, OHIO.



DISAPPOINTED AGAIN.

We have been still further disappointed and delayed in the delivery of a car of glass honey-jars, No. 25 and Simplex. Some orders are beginning to move direct from the factory on No. 25, which are in stock in Philadelphia, New York, and Chicago, and will soon be on hand here. The Simplex are delayed for want of cases which the factory is having no end of trouble in making, according to their reports to us.

SWEET-CLOVER SEED.

It would seem as though our call for seed of sweet clover was a little late in the season, especially for the yellow variety, which matures earlier than the white. So far we have heard from only two parties having white sweet-clover seed to offer, and none of yellow. It will be a pity if those who have this variety have not saved any seed, as there is a good demand for both kinds. We have not yet secured enough of either, and trust some of our readers have seed to offer or know of some available. If so, let us hear from you with sample and price.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to \$1.00 each.

B. P. S. paint for hives is advanced to \$1.75 per gallon; 90 cts. per ½ gallon; 50 cts. a quart; 30 cts. a pint.

Painted wire cloth is advanced to 2½ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 m. sh. is advanced to 8 cts. per sq. ft.

The A B C of Bee Culture, very greatly enlarged and improved, printed on enameled paper, is advanced to \$1.50 postpaid; \$1.25 with other goods by freight or express. The new edition will not be completed till November. Half-leather editions will be \$2.00; full leather, \$2.50.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50 cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those for handed people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in October,	deduct	5 per cent.
" " November,	"	4½ "
" " December,	"	4 "
" " January,	"	3½ "
" " February,	"	3 "
" " March,	"	2½ "
" " April,	"	2 "

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-es-

capes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

A TREE-LOVER'S BOOK.

We have just received a copy of a newly published book which we believe is destined to occupy a unique place in the literature of North American trees. The full title of this volume is "Handbook of Trees of the Northern States and Canada," and it is all that and perhaps a little more for good weight. The author and publisher is Mr. Romeo B. Hough, Lowell, N. Y., who has already achieved a national reputation for his meritorious "American Woods." The idea underlying this new book on trees is to convey a large part of the information by means of pictures, and this has been accomplished very happily and beautifully. There are still some who believe that photography has nothing to do with art; but these unbelievers would have to revise their opinion if they should carefully examine the illustrations in this book. Trees lend themselves splendidly to pictorial illustration, and the book now before us shows how well it can be done. It is a work of art in the best sense. North America is famous for its many beautiful (and at the same time valuable) trees; and any one not conversant with them will be pleasantly astonished at the number and beauty of our American forest-trees. Except in the tropics there is nothing like them.

To the bee-keeper a book of this kind has a charming interest; for many of the trees here described are familiar nectar-producers. For example, the following liberal honey-yielders are illustrated and described: Willows, elms, magnolias, tulip-trees, sweet-gum, plane-trees, wild apples, red-buds, coffee-tree, yellowwood, locusts, sumacs, hollies, maples, basswood (or linden), tupelos, rhododendrons, laurels, sourwood, persimmons, catalpas, figworts, and some of lesser note. Now that we are close up to a timber-famine these trees become more important than before; and truthful, accurate information as to the habits, range, rate of growth, and general value of our native trees, is more desired than ever. As a rule, even farmers who are familiar with most of these trees are not well informed as to their value and habits. Even the lumbermen are not, and much remains to be known.

Two things of vast importance have been discovered in recent years: First, that many trees can be grown very closely, and that they grow fast when properly planted. Then, too, we have learned to know just where each tree will grow well and to the best advantage by carefully studying its habits. This forms a rural education in itself, well worth having; and if you are a country resident it is a sort of disgrace not to know the trees. With Mr. Hough's book you may soon learn to recognize and name correctly the trees of your neighborhood, and begin to take an intelligent interest in them.

Some of them, of great beauty, you will want for your doorway and around the farm, and probably your wife will be as keenly delighted with this volume as you will be, causing you to adorn the old homestead with these charming additions to the landscape—trees. It will give a new zest to tree-planting. The illustrations of the tree itself, the fruit, the leaves, the bark, and even the grain of the wood, should enable any intelligent person to name properly the trees of his locality, thereby adding very considerably to his stock of scientific knowledge. For teachers, therefore, we should think the work indispensable. The price is high; but it is a large book, hand-somely bound, with fine paper, and all done in the highest style of the printer's art. W. K. M.

We can supply this book at publisher's price, \$8.00.

Special Notices by A. I. Root.

BASSWOOD-TREES FOR FALL PLANTING.

Up to the present date, Oct. 11, we have had no frosts sufficient to make the leaves fall; but we expect them to come very soon now. As soon as the leaves drop we are in the habit of shipping basswood-trees. Perhaps spring planting would be preferable to fall planting; but as the basswood is a very hardy tree I think if they are put out with ordinary care at any time during the fall, winter, or spring, when the ground is not frozen, few should fail to grow. In our locality we very seldom have the ground frozen up so but that we can ship trees readily any time during November; and sometimes we can, during a thaw,

take them up more or less during December. We are now ready to ship such sizes and at prices as are given in the table below.

	Per 10	Per 100
One foot and under, each	.05	.30
The above by mail, "	.08	.35
One to five feet,	.10	.75

They had better go by mail or express. We would not recommend sending them by freight, although when carefully packed we have had them grow after being out of the ground for several weeks. I think trees not over five feet high grow, as a rule, better satisfaction than larger ones, and the expense of shipment is very much less on little trees.

SASHES FOR HOT-BEDS, COLD-FRAMES, AND LITTLE GREENHOUSES.

Now is the time to begin to think of giving some protection to plants and flowers that are to be wintered over; and there is not only pleasure but profit in seeing stuff grow all winter long. With a few sashes you can make a cold-frame that will grow lettuce, cabbages, and a lot hardy stuff without any heat; and when you get ready toward spring, with fermenting stable manure you can get both pleasure and profit from the hot-beds. With a dozen sashes or less you can make a greenhouse opening out from your cellar so you can grow vegetable-plants and other things; and with present prices for almost every thing grown under glass you can make a profitable investment of your time on stormy days, and even keep your hired

help busy that would otherwise be unemployed. Any one who does just a little in the way of market-gardening should have some sashes and start a little greenhouse. Now, I have just sent for samples (so as to be up to date) of the latest and most improved patterns of hot-bed sashes to be found in and around our largest cities; and while we are making them of late of cypress, the best wood in the world for the purpose, our prices are still unchanged. We keep constantly in stock, ready to ship, sashes both in the flat and nailed up.

PRICES OF OUR LATEST IMPROVED COLD FRAMES OR HOT-BED SASH MADE OF CYPRESS.

Price of one sash, in the flat, for sample, without glass, 90 cts.; 5 in the flat, 85 cts. each; 10 in the flat, 80 cts. each. Glass, 8 x 10, just right for the above. \$2.90 per box of 90 lights; 5 boxes, \$2.80; 10 boxes, \$2.70.

Sash put up, no glass or paint, 10 cts. each extra; 10 cts. each extra for each coat of paint, and \$1.15 each extra for glass set in place, making the sash put up, painted two coats, and filled with glass, at \$2.25 each in lots of 5. The risk and freight charges are so much more shipped put up with glass that we do not recommend you to order this way, and we can not well pack less than five safely.

We would not advise shipping a less number than five; but if you take our advice you will have all your glass sash shipped in the flat. In this case they go as fourth-class freight; whereas, all complete they will have to go as first-class, and some roads rate them as double first-class.

Awards in Photographic Contest.

In accordance with the terms of our prize contest for photographs relating to bee-keeping the following awards have been made:

AWARDS.

Class A.

First.—W. W. Lawrence, Centerville, Texas.
First.—(Foreign) E. Bondonneau, Paris.
Second.—Henry Schmieder, Roxboro, Philadelphia, Pa.
Second.—(Foreign) J. Rinaldo, Italy.
Third.—Charles M. Harris, Rochester, N. Y.
Fourth.—(Foreign) A. Demiere.
Fifth.—(Foreign) O. R. Bostock, New Zealand.

Class B.

First.—Rev. Dr. Wagner, Cincinnati, O.
Sixth.—Irving H. Childs, Benson, Vt.

Class C.

First.—W. E. Patterson, E. Springfield, Pa.
Second.—(Foreign) St. Mary's Abbey, Eng.
Third.—W. A. Stewart, Elkin, Pa.
Fourth.—Rev. A. J. Kline, Brainard, Neb.
Fifth.—D. Meuser, Elmwood, Ontario, Can.
Sixth.—J. S. Gilfillan, Newark, Del.
Seventh.—Barnard Cummings, Chicago, Ill.

Class D.

First.—D. L. Blocher, Pearl City, Ill.
First.—(Foreign) Eugene F. Mason, Haiti.
Second.—(Foreign) Joseph Baptiste, Haiti.
Third.—(Foreign) E. Anthony, New Zealand.

Class E.

First.—Walter Garabrant, Chester, N. J.
Second.—Joseph Peterson, Clover, Utah.

Class H.

First.—(series) J. S. Gilfillan, Newark, Del.

Class I.

Second.—John D. Blair, Arminto, Ky.

Class J.

First.—(Foreign) St. Mary's Abbey, England.
Second.—C. B. Peterson, Chicago, Ill.
Third.—George Fenton, Pine Island, Minn.
Fourth.—(series) Charles G. Macklin, Morrison, Ill.
Fifth.—William Thompson, W. Roxbury, Mass.
Sixth.—Scott W. Jackson, Dundee, Mich.

We hope there has been no oversight in any way. We are disappointed in not being able to award the full list of prizes in each class. In some there are very few entries, and in others the photographs were so poor that we could not make any award to them.

Notwithstanding the smaller interest in this than in some of the previous contests, we may have another to announce next year; but whether one is announced or not, we shall be glad to get really nice photographs of any subject relating to bee-keeping, at any time, and will pay fair prices for the same. If any error is discovered in the awards we shall be glad to make the matter right on hearing from the interested party.

1907 A B C of Bee Culture will be mailed to prize-winners as soon as the books are completed, probably within two or three weeks. Other prizes will be sent at once.

The A. I. Root Company.

Bee-Breeding.

A bee-book that's different.

Yes, really. It attacks this subject, of such vital interest to bee-keepers, in a way that no other book does. Every bee-keeper should have a copy. Don't think that, because you do not rear queens, you do not need the book. It doesn't tell how to raise queens—other books do that. If you have but a colony of bees it's valuable to you.

It's a beautiful little book—art cover and India-tint paper printed in two colors. You will be pleased with it all the way round; or if for any reason after you get the book and look it over you don't think it's worth the price I will refund your money.

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TESTIMONIALS

Dear Mr. Green:—I am in receipt of your letter of the 26th inst., and also the copy of your little book, "Bee-breeding," for which I wish to thank you. The book should help arouse more interest in a branch of apiculture long neglected by the masses and but little touched by speci. lists.

Providence, R. I., Sept. 28. ARTHUR C. MILLER.

My Dear Mr. Green:—I thank you very much for the excellent little book, "Bee-breeding." It is good, both from a scientific and from a popular standpoint. Yours very truly,

PROF. L. B. WALTON.
Department of Biology, Kenyon College,
Gambier, O., September 13.

Dear Mr. Green:—Since you were here yesterday I have had an opportunity to look over the book

entitled "Bee-breeding," and write to express my appreciation of your thoughtfulness in handing me a copy of it, and to compliment you on the work in preparing the manuscript, and on the way in which you have had it so attractively bound. It covers a field which, in my opinion, is altogether too much neglected; for, as you say, "We need better bees." Yours very truly,
Medina, O., Sept. 5. ARTHUR L. BOYDEN.

Dear Sir:—Your handsome little book is received, and I agree with you that it is the "finest yet" brought out in the interest of the honey-bee. I shall place the gem among my treasures.

Yours in apiculture.
Swarthmore, Pa., Sept. 12. SWARTHMORE.

Price 25 cts. postpaid.

For sale by supply-dealers everywhere; or address the author,

Stephen N. Green,
Box 96,
Medina, Ohio.

The trade supplied by THE A. I. ROOT CO.